RAPID ETHNOGRAPHIC ASSESSMENT OF INFANT FEEDING PRACTICES IN THE SUDAN

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1255 23rd Street, NW
Washington, DC 20037
Nutrition Communications Project (DAN-5113-2-00-7031-00)

This activity was supported by USAID/Sudan
PIO/T No. 698.0421.50-3-80035

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I. Introduction

This report summarizes the major results from a rapid ethnographic assessment of current infant and child feeding practices, the rationale behind them, and the conditions that may influence them in six villages in three regions of the Sudan. The work was carried out in July and August, 1989, under the auspices of the Nutrition Communication Project by Sudanese field investigators from the School Gardens/Nutrition Education Division of the Ministry of Education (SGNED) and the Nutrition Division of the Ministry of Health (MOH), with the technical coordination of Dr. Zaghloul. The work was based on previous planning and technical review by the Academy for Educational Development (AED) staff and consultants (Levy, 1989; Harrison 1989a, b). For more detailed information about the context of and background to the study, the reader is referred to these documents, and to the consultant trip reports which describe the training of fieldworkers (Harrison 1989c) and the conduct of the fieldwork (Zaghloul, 1989). The general methodology was based heavily on rapid assessment methods (Scrimshaw and Hurtado, 1987) as adapted for the Nutrition Communication Project by AED and with specific adaptations for Sudan by the present consultants.

II. Overview of Methodology

The Field Sites were six villages, two in each of three regions of the Sudan (Khartoum, Gezira and N. Kordofan), chosen by the Sudan Ministry of Health and SGNED to represent areas which a) would be potential intervention sites at a later date; b) exhibited environmental and cultural diversity; c) had logistical and infrastructural adequacy for conduct of the field study and follow-up interventions; and d) had not been impacted previously by studies or development projects.

The Field Research Team consisted of experienced fieldworkers (all but one female) who are on the staff of either the School Gardens/Nutrition Education Division of the Ministry of Education

or the Ministry of Health/Nutrition Division in each of the three regions. Three or four fieldworkers carried out the study in each region. All but two were trained during a four-day workshop in Khartoum in June 1989 (Harrison, 1989c), followed by preliminary fieldwork practice prior to beginning the studies in July of 1989. The two workers in Kordofan who did not attend the Khartoum workshop were trained by the other two who did. Most of the fieldworkers were experienced nutrition educators; thus a major task of training and of ongoing supervision was to help these individuals set aside their "teacher" role and adopt the more open role of researcher.

Methods. The methodology utilized semi-structured interviews and structured observations. Each community study began with a preliminary community assessment and interviewing of community leaders (midwives, health assistants, teachers, and experienced women), who functioned not only to legitimize the study but also as key informants to aid in the identification of study households. Twelve households were studied in each village, or a total of 72 households. Study households were chosen initially because they contained a child under three years of age (index child). When more than 12 households were eligible, participating households were selected for willingness to cooperate with the study and to maximize the within-community variation in household structure and demographic variables hypothesized to reflect variation in nutritional status as designed by Harrison (1989). The households were sampled using a quota system, not to be statistically representative of the village but rather to maximize variance observed; this limits statistical inference in analysis but insures knowledge of the range of relevant knowledge, attitudes, and practices. Households were defined as comprised of those individuals who shared meals and cooking, since in some instances more than one family occupied the same house structure.

Data were recorded on ten field "guides" which were based on those used in previous AED/NCP work in Niger and work by others in Pakistan (Griffiths, 1988) and adapted for local use by the

fieldworkers themselves during the training workshop. The interview guides and the recording of data were in Arabic. Data were translated into English where appropriate; data by household were coded by the author, entered into a microcomputer using DBASE III+, and analyzed using SPSS-PC. In addition, observations and ethnographic data collected by the author were recorded in field notes; these supplement the more structured interview and household observation data.

The fieldwork took three to four weeks in each region (23 days each in Khartoum and Gezira and 26 days in Kordofan), and took place between mid-July and the end of August 1989. In each village, the fieldwork proceeded in four stages. The first phase, community assessment, lasted several days and included making a map of the village, assessing markets, schools, health services and other infrastructure, and identifying key informants (village leaders). The second phase included working with the key informants to make the study acceptable and welcome, and to identify potential study households. The third phase was selecting the sample of a dozen households/village, each with a child under three years of age and otherwise selected to maximize variability in family structure (nuclear vs. extended; one child vs. > one child; children of both sexes or single sex; families with father or mother absent/deceased) and in nutritional status (socioeconomic status, obviously malnourished vs. healthy children). The fourth and last phase (daily household visits over 6-7 days) was devoted to interview and observation of each of the twelve sample families. Timing of interviews for each family was structured to allow observation of a variety of activities and to maximize the comfort and familiarity between interviewer and family. Each evening, the interviewers reviewed their data, filled in missing information and discussed their observations among themselves and with the consultant when present.

In addition to the structured interviews and observations with each study household, a group discussion was held in each region during the last week of fieldwork. These discussions were held

in El Eid Babikr, El Nazer and El Karbab. In each case, the group discussion was held in a house, with 7 to 10 women of varying ages who were not in the interview study. The participants were not systematically selected, as the early mention of the plans for a group discussion resulted in the enthusiastic appearance of women once the researchers were in a home. It seemed that systematic prior selection would have been interpreted as excluding some women, which was not desirable. Group discussions were productive and enthusiastic; all participants were active in the groups. The sessions all covered between two and three hours. The central questions around which the group discussions were organized are contained in Appendix C; questions were asked by the consultant and one of the field interviewers in each location served as recorder. The results from the group discussions are integrated into the present report; it would be useful at some future time to compare the opinions from the group discussions to responses and observations from mothers interviewed individually.

Problems encountered during the study

The first problem was a logistics one. The one month lapse between the workshop and the field work necessitated repeating some aspects of the training to refresh the trainees in interviewing methods. Working in three regions with three different teams in a short period of six weeks limited the possibilities for discussions among the teams. This would have improved comparability of discussion group formats, and increased overall data generalization.

Secondly, once in the villages, it quickly became apparent that ten days for each village was not enough time to collect the level of detailed information that would have been desirable. A period of a month in each village would be appropriate if data about food availability at the household level is required.

Thirdly, a technical problem encountered related to a Sudanese cultural pattern. Sudanese like to show interest in their guests by leaving their housework to be done by other members of the family when guests are present. Thus it was initially difficult to observe the mothers' activities at home relating to food preparation and child feeding.

Fourth, a particular difficulty faced the interviewers in many households, because social norms dictated that if a woman had a visitor she should devote her whole attention to the guest. She would continue her child-care activities, but cooking, food preparation and house cleaning responsibilities were assumed by other family members while she chatted with the visitor. This situation was minimized as the interviewers became more familiar to family members and thus received less special treatment.

III. The Villages Studied - Background Information

Sudan is the largest country in Africa, comprising an area of more than one million square miles and a population of well over 24 million. The population shows marked environmental and cultural diversity. Several hundred ethnic and linguistic groups are present with Sudan's borders, and recent movement of population within and into the country ensures that even national statistics do not adequately reflect the diversity. Politically, the Sudan is divided into nine regions or provinces, each with its own geographical nature and cultural mix. Three regions were included in the study, namely Khartoum (north of the capital city); Gezira (southeast of the capital by two hours drive on maintained but unpaved road); and north Kordofan (45 minutes south and west of the capital by air, or 12 hours on poorly-maintained roadway). The locations of the study communities may be seen in Figure 1. The villages and their major characteristics are described below, based on the community assessments done as part of this study. Hand-drawn maps of each village are in Appendix D.

Khartoum. Two villages were studied in Khartoum, El Eid Babikr and El Gar. El-Eid Babikr is a village 22 kilometers (30 minutes drive) east of North Khartoum. It covers an area of 4 square kilometers. It has a population of 3290 (1987, Sudan Plan Project). El Gar is 3 kilometers further and larger than El-Eid Babikr.

In both villages, Arabic is the only language spoken. Residents of both villages include a variety of socioeconomic strata, with occupations of men including poor wage laborers, hand-workers (carrying sand to/from trucks), middle-class taxi drivers and relatively rich business men. The men in these communities are responsible for shopping for all the household needs including vegetables, meat and medications. Women are responsible for preparing meals and taking care of their houses and children. Women in this area, as in all three regions wear the traditional *toub*, similar to the Indian sari, outside the house. These villages have no electric power; the television sets of the well-to-do are run on batteries.

Extended families are the norm in this area, and houses (built from bricks or mud) tend to be large with many separate rooms and one or more courtyards with an outside wood or metal gate. Separate quarters may belong to each nuclear family within the compound, and one may represent a guest house, but all within the compound share the bathroom and kitchen. As in much of the Sudan, some living rooms, *racouba*, are either a corner room or a room with two separate doors. They have a wooden sofa, *angarib*; mattresses and pillows are used for sleeping at night or when guests are present. Sleeping is usually outdoors especially in the summer. An important separate room, the *Mazira*, contains clay water storage containers called *zir*.

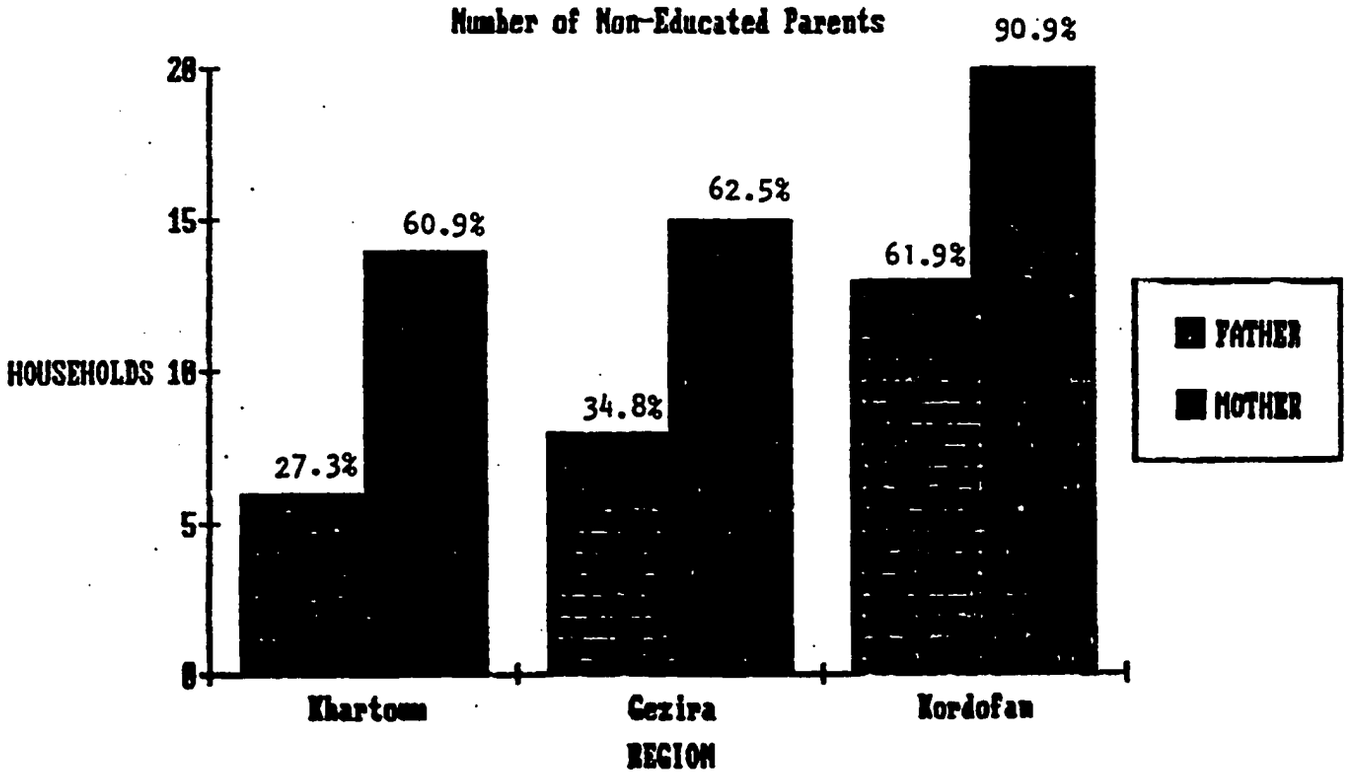
The water supply in these villages is from springs; water is stored in large tower containers, raised

by electric pumps and piped to most of the houses. The water supply to the houses is not continuous but follows an intermittent schedule on each side of the village. Drinking water is stored in *zir* and cooking and washing water in *barmil* (metal containers, easily rusted). When the piped water is inadequate, people buy water which is transported to them in containers pulled by donkeys from nearby villages. A tank container (96 liters) is sold for 30 pounds (about $2.50) where the average monthly income is 100 sudanese pounds (Salih et al., 1987).

The education level in these villages is not high. The percentage of non-educated males in the study group was 27.3 percent while the level of non-educated women was 60.9 percent (Figure 1). Most younger girls and boys attend school. Both villages have their own schools. El Gar has one mixed primary school, two Koranic schools, and a social center in which girls learn handcrafts, while El Eid Babikr has four mixed primary schools and two high schools (one for boys and one for girls). The Koranic schools, *khalwa*, are where young boys before school age are taught the Koran. The age of admission to government schools is seven years, but because the classes are overcrowded, most children actually do not start school until the age of eight to ten years. Girls usually do not proceed beyond the fourth grade before leaving school to prepare for marriage; boys are theoretically more able to continue, but most do not.

In each village, a *Fukih* or religious healer treats psychological problems by reading the Koran and writing some verses from the Koran on a piece of paper called *Hegab*. He also treats various illnesses with *Mahaya*, a wooden tablet where Koranic versus are written and the ink is washed out with water, which is then drunk by the patient. The village also has a *bassir* or traditional healer who treats broken bones and children's gums when teething. There are midwives (*dayas*) in each village (three in El-Eid Babikr and two in El Gar). Pregnant women tend to receive prenatal care from the health center, but their babies are delivered by the *dayas*.

Figure 1. Level of education by region, Sudan, 1989.



El-Eid Babikr has a government health unit, called *shafakana*, which includes a team of health assistant, nurse and a worker. El Gar has another small unit with one nurse. The health unit is comprised of two rooms, one as a storage facility and one is used for examinations. The working hours of these two clinics are from 7:30 am to 2:30 pm. On average, the clinic is attended by 25 patients per day. The health unit in El-Eid Babikr was originally a three-room facility, however, one room was destroyed by rains. Now, as in El Gar, the other two are used for examining patients and storing drugs. This unit provides immunizations and uncomplicated acute care, including distribution of medications free of charge (antibiotics, vitamins, folate, iron, oral rehydration [which is not used, according to the health assistant, because he is satisfied with the salted spring water] and chloroquine). The commonest illnesses treated by the health assistant are gastroenteritis, diarrhea, chest infection (*el Tihab or Nazla*), schistosomiasis (*bilharzia*) and malaria. A new health care center is being built.

From Khartoum, there is a road for about 15 kilometers to a nearby village; the remaining distance (3 kilometers to El Eid Babikr, 5 kilometers to El Gar) is without a road; one must drive in sand. El Eid Babikr is connected to surrounding villages by public buses as well as private minibuses, and communications are easy and available. There are no roads around the villages, but the buses and taxis can easily find their way to the village. El Gar is similar in many ways, but since it is somewhat farther from Khartoum, communications more difficult and services somewhat fewer. No buses or taxis are available; transportation to the city is largely through hitching rides with those who work there and have trucks.

There is no market in either village, but a very large market is five kilometers from El Eid and eight kilometers from El Gar in the community of Helet Kuku. A wide variety of goods and

services is available there including vegetables, fruits, meat, groceries, books and newspapers, as well as tailors and restaurants. Vegetables and fruits are available only seasonally; there is more variety during the winter than during the summer (from May until September). The market is conspicuously missing eggs, chicken and fish. This market serves five nearby villages. Within El-Eid Babikr there are three small grocery shops, a butcher shop and five bakeries. Within El Gar, seven small grocery stores in the village sell only essential foods like oil, salt, biscuits, *tehina* (sesame paste) and onion.

Both villages are Muslim villages. El-Eid Babikr has three mosques and El Gar has one. Religious *sheiks* give their advice to the people and teach the children Koran. The mosques are the place of recreation for the men as there are no coffee shops or restaurants in the village. After communal prayers on Friday, the men sit together to socialize. Meetings to solve the problems of the village are held in the schools in the afternoons, where all men of the village gather to discuss their problems.

Gezira. The central area of Sudan southeast of Khartoum called *Gezira* (island) is well known for its irrigated agriculture. The green fields contrast sharply with the adjacent desert areas. The major settlement in the area, and the capitol city, is Wad Medani. Gezira has a relatively well-developed mass media system, with both radio and television based in Wad Medani and local programming to supplement the national programs. This availability is reflected in the study villages, where in Gezira two-thirds of the women interviewed reported that they listen to the radio (compared to slightly over half in both Khartoum and Kordofan). Two villages were studied in Gezira, El Nazer and El Doma.

Twenty-four kilometers southeast of Wad Medani lies the village of El Nazer, ("the overseer"),

named after the profession of its first settler, who with two cousins settled the area 200 years ago. Over the years the village has grown to 50 families. El Doma, the second village studied in Gezira, is similar to El Nazer except that it is poorer and farther from the road. It is 30 kilometers from Wad Medani and five kilometers from El Nazer. El Doma covers an area of about 15 acres and has a population of about 2000.

The men of these villages work as farmers during the rainy season from July until October. Over the rest of the year, they are hired as wage workers. Women not only take care of their houses and children but also sell some handmade baskets and sew school bags which they sell for ten pounds apiece in the cities. In addition, they assist in harvesting okra from the local fields. By the age of 12, most girls are felt to be ready for marriage by virtue of having learned the necessary skills in housekeeping and child care. Girls are taught how to bake *kisra* at an early age.

The water supply for El Doma is a well, supplemented with water carried or transported by donkey from the Nile and sold in the village at a cost of three Sudanese pounds/*barmil* (about 25). This is expensive in relation to incomes, which are very low. Water is stored in the households in *barmil* or *zir*. El Nazer is not supplied by electricity nor by water. Governmental tanks transport water to the village every other day. People fill their containers, carry water home and store it in either *barmils* or in *zir*. This water is covered by a sheet of wood and is used for drinking, cooking and for watering the animals. There are two springs in the village but the people minimize water use from them as the supply is threatening to run out.

El Doma has only one primary school; a koranic school is being built. Children from El Nazer walk five kilometers to El Doma to attend the school there. There is a mosque in each village. El Nazer has no health services, whereas some services are available in El Doma including an elderly

traditional midwife, a *fakih* and a *bassir*. Villagers from both communities travel to Wad Medani for health care.

There is no public transportation to El Doma or El Nazer; the villagers rely on private cars, trucks of businessmen who make deliveries or sell things, or taxis when it is necessary to travel outside of the village. A round-trip taxi ride to Wad Medani, leaving the village at 7 a.m. and returning in mid-afternoon, costs about five pounds (approximately fifty U.S. cents). Few men leave the village regularly except for wage labor in nearby villages or Wad Medani during the dry season; women rarely travel. The only means of communication with the nearby villages and towns is by walking or by donkey. Sick persons must be carried four kilometers to the nearest health services, and school children have to walk five kilometers to reach their schools.

There is no market in both villages and the nearest market is in Wad Medani. People had to travel their to buy their vegetables, meat and medications. There are no grocery stores in El Nazer. There are four in El Doma. These are small shops selling soaps, coffee, tea and oil.

There are six toilets (*bet-el-adab)* in the El Nazer and none in El Doma. Not everyone has easy access to them, so most people just walk a distance away from the houses to defecate. Children walk about naked, and urinate and defecate wherever they may find themselves. Most households own chickens and/or goats, and sometimes sheep or cows. The animals are kept in the house, usually in or near the bedroom. Thus both children' and animal feces must be swept from the house. Animal manure is either carried out and thrown away, or is kept for building material (particularly needed for repairing the houses after rain).

Houses in these villages are built as separate rooms that may or may not be surrounded by a fence

or wall. Walls are built from bricks or from mud. Families who can afford wood have large windows; poorer houses are built with very small openings, to provide minimal ventilation without letting rain in. Thus one of the major variables in quality of housing is adequacy of ventilation, which is more or less directly tied to economic status. There is a common guest-house for each village, and a visitor to anyone means a visitor for the whole village. Every household contributes a share of food and drink for visitor(s). Young girls are responsible for serving guests and older individuals, as part of their learning to be housewives.

Kordofan. Two villages were studied in northern Kordofan, El Farsha and El Karbab. El Farsha has a population of roughly 2000, and El Karbab 1700. Both villages lie southwest of El Obyeid at 105 kilometers and 35 kilometers respectively with a distance of 45 minutes drive between them. Both villages rely on agriculture and herding, and their seasonal work cycle depends heavily on the vagaries of the yearly rains. Normally, the men in these villages work from July until December in agriculture, helped by their wives and children. During the rest of the year they work as day laborers in cities or nearby villages. The main crops are sesame, sorghum, millet, *karkada* (hibiscus) and gum arabic. Women share the field work with men, in addition to taking care of children and housework. They also have to walk a six hour round-trip to both mill their sorghum in a nearby village once a week, and bring wood for the fire every second day. During the day children are left with their older sisters or with elderly relatives; this child care responsibility is an apprenticeship for motherhood for the young girls.

Obtaining water for everyday household activities is a major activity for households in water-poor Kordofan. Young children are responsible for carrying water from large, government-built depressions (*Hafir*) and smaller, locally-constructed and cement-lined basins (*Haud*) where rain water is collected. The nearest of these water-collection facilities is a five to six hour round-trip on

foot from the village. In families which do not have young children who can assume this task, men and women share the transporting of water. This water is stagnant and dirty, but provides the major water supply for the area for at least ten months of the year. During the other two months, water is transported from El Obyeid at a cost of 2.5 Sudanese pounds ($0.25) per gallon. Minimum daily use for a household is between five and six gallons for cooking and drinking; more is required for washing. During the summer, when water must be purchased, it is brought every other day to the animals; during the rest of the year the animals are driven to the nearest *hafir* to water them. In the houses, water is stored in dirty clay containers or metal ones which rust easily. They are left mostly uncovered, and metal tankards are used for getting the water from the containers.

Neither village has a market, although one has a small grocery store and the other has five small groceries which supply the village with soap, oil, tea, coffee and a few other items. Most households depend mainly on their own agricultural production, both for sale and for consumption. A butchery is not available and meat is not eaten on regular basis. When animals are slaughtered, the meat is immediately shared with neighbors; some people purchase additional meat beyond their immediate needs, and dry it for future use. The villages are not connected to other villages or to El Obyeid by communications or roads. Camels and donkeys offer the only means of transportation.

The houses are straw huts surrounded by fence. Domestic animals (sheep, goats, donkeys, camels and chickens) are kept in compounds inside the houses or close to them. Manure is kept in places called *Tanadel* where it is either burnt or thrown away from the village. Some people sell it to other villages where it is used for building and repair of houses. Because the houses are made from straw but covered on the inside by a woven mat, they are not well ventilated and flies are numerous, especially inside. Children commonly defecate on the floor; the adults walk away from

the houses to defecate. A few houses have a half-walled L-shaped building behind which serves as a toilet/bathing facility.

No medical services reach these two villages and the inhabitants depend on traditional healers who utilize cautery and bleeding, among other therapies. One trained midwife is practicing in El Karbab while the other village depends on a traditional (untrained) midwife who is a six-hour walking distance away. Maternal mortality and puerperal sepsis are high.

Both villages are 100 percent Muslim; each has a single mosque. The religious men in both villages are hired by the people according to their education level and skill in reading the Koran. El Karbab has a primary mixed school and a Koranic school for children seven to ten years old. School attendance is low and the overall literacy among adults in the village is negligible.

Women take care of the house and children, prepare food and participate in field work. In the evenings they visit each other. About 33.4 percent of the women interviewed reported that they listen to radio versus 66.7 percent in Gezira and 58.3 percent in Khartoum. There are no televisions in these villages, but men watch television occasionally when they visit El Obyeid. Men rarely participate in child-raising tasks, believing that to be women's work except for the purchase of food (as reported by 52.6 percent of men in Kordofan) and visits to the doctor (57.9 percent). The man's roles are to earn money, carry wood, and share in the bringing of water. Table 1 shows the relationship between fathers' and mothers' answers about fathers' role in children 's medical care. There is a reciprocal relationship between fathers taking their children to the doctors and mothers using traditional medicine. This relationship might be explained by the situation as regards medical services and transportation facilities.

Table (1): The Relationship Between Parents' Answers About Fathers' Role In Child Medical Care, Sudan, 1989

	Khartoum	Gezira	Kordofan
Father's question: "Do you take your child to the doctor?"	87.5% (14)	100% (14)	57.9% (11)
Mother's question: "Do you use traditional medicine?"	33.3% (8)	33.3% (8)	66.6% (16)

The sanitary environment

Evaluations of sanitary conditions of the household were based on the interviewers' observations. Agreement was reached at the beginning of the study to rely on the cleanliness of the household as an indicator of sanitary conditions (the clothes, hands, ventilation, the pots from inside not outside, flies, animals feces in the living rooms in absence of animal compounds). This was further developed when the team visited a few houses together and established agreement on the description of the household. It was clear from the home visits that there are regional differences in the sanitary conditions of houses in general. Khartoum has the poorest conditions with more flies in the household regardless of the socioeconomic status of the household which was more related to father's job. Of 24 houses in Khartoum, data show clean mothers' clothing in 16, clean child clothing in 6, clean mothers hands in 17, the good ventilation in 16 and the presence of separate animal compounds in 15. A different situation was in Gezira, where 22 of 24 mothers had clean clothes and 21 of 24 had clean hands. The children's dresses were clean in 12 of 24, ventilation was good in 21 of 24 and 17 of 24 households have separate animal compounds. In Kordofan, 17 of 24 mothers were clean dresses and 21 of 24 had clean hands, 8 of 24 of the children had clean clothes. The ventilation was good in 7 of 24 houses and animal compound were

available in 18 of 24 households. (See Table 2 below.)

Table (2): Percentage of Homes with Sanitary Environment, Sudan, 1989

Region	Indicator				
	Mother's Clothes	Child's Clothes	Mother's Hands	Ventilation	Separate Animal Compounds
Khartoum	16/24 (66%)	6/24 (25%)	17/24 (70%)	16/24 (66%)	15/24 (62%)
Gezira	22/24 (91%)	12/24 (50%)	21/24 (87%)	21/24 (87%)	17/24 (70%)
Kordofan	17/24 (70%)	8/24 (33%)	21/24 (87%)	7/24 (29%)	18/24 (75%)

The likelihood of stored water being reported as not clean differed between the three regions. Cleaned stored water was defined as when the pot or the container looked clean, was covered and had a specific cup for pouring the water. The water used for cooking was significantly different in the three regions, water from the *zir* or *barnil* were commonly used in Khartoum, and *barnil* and plastic jugs were more prominent in Gezira and Kordofan. Watching while the food was being prepared confirmed the fact that the cleanliness in Khartoum was lower; however, in all three regions only few mothers washed their hands before cooking, mothers uniformly ate from the same dish as the child, and it was rare to observe children being served separately.

IV. Food Intake

A. Meal Patterns and Commonly-Consumed Foods

In spite of the diversity which characterizes Sudanese life, there were more commonalities than

differences in eating patterns among the three study regions. The meal patterns are heavily influenced by availability of food, which in turn is a function of transportation facilities, availability of nearby markets, and the distance to the capital. In general, of the three areas studied, diets are most varied and food is most plentiful in Khartoum province, and most limited in Kordofan. The descriptions which follow are on the mother's recall of the child's consumption in the previous 24 hours, a standard approach to collecting food consumption data. In addition, structured observations were made by the interviewers of food preparation, infant/child feeding, and other relevant behaviors on daily visits to the household.

In all three areas, the meal pattern was similar with two to three meals per day, plus tea (usually with milk and sugar) first thing in the morning. The two major meals are breakfast (9-10 am.) and lunch (2-3 pm.). There was substantial regional difference in the use of *kisra*. *Kisra*, the traditional staple food, is a very thin baked sheet made from either fermented sorghum or millet flour. In Gezira, 71 percent of households reported using *kisra* in either breakfast or lunch, or both compared to 33 percent in Khartoum and 29 percent in Kordofan. In El Gezira *kisra* is made from sorghum flour or millet while in Kordofan the only type used is the millet. In Khartoum, sorghum is mixed with wheat to make *kisra*. Wheat bread is a popular and recent substitute for *kisra* in both El Gezira and Khartoum (12.5 percent and 37.5 percent of households, respectively, reported using wheat bread in these areas); it is not used at all in Kordofan. *Assida*, a thick porridge made from fermented sorghum, is also common especially for breakfast and is served with various sauces poured on top. Again, there were significant regional differences in consumption, with almost two-thirds (62.5 percent) of mothers in Kordofan reporting preparation of *assida* compared to 12.5 percent in Gezira and 8.4 percent in Khartoum.

Dried green leafy vegetables like *molikia*, *rijla*, and *abidib* are commonly eaten; the only vegetables

available the whole year are onions and dried okra, *weika*. Kidney beans, *lubia*, are widely consumed, and fava beans (locally called "Egyptian beans") are common in Khartoum, being reported by 29 percent of families interviewed there. In Gezira, black-eyed peas were also consumed. In Khartoum, breakfast is typically fava beans stewed with raw onion sprinkled on top; or lentils; and bread or dried okra. Lunch tends to be *kisra* or bread and *mulah*, which is any cooked vegetables with or without meat; the most common vegetables are potatoes and okra. Meat is consumed in the dried form (*mulah sharmoot*) in Kordofan and Gezira, where a mixed dish consisting of dried meat cooked with onion, oil, and *weika* was reported by 21 percent and 25 percent of families respectively. In Khartoum province, dried meat was not reported but fresh meat prepared with vegetables was more commonly used than in the other two areas (37.5 percent of Khartoum households, compared to 29 percent in each of the other two regions). Dried red pepper is an essential part of the cuisine, being served with beans, bread, and vegetable dishes. There is no consistent evening meal or dinner; when consumed, it tends to consist of beans and milk or bread and milk. It is often either skipped or replaced by a glass of milk or tea if available. The lack of an evening meal is almost certainly a function of food costs and availability.

Table 3 presents the mothers reports of the "best" food for children in the household survey. *Assida*, cookies, and pudding are the most frequently reported "best" foods in this context. In contrast, discussion groups indicated that *nasha* was the food most commonly served to children, and the most likely "first" food. No special food is prepared for children except during illness. Juices as lemonade, *karkada* (from hibiscus) or grapefruit juice are common. In Kordofan, 21 percent of mothers reported making "red tea" (tea without milk) for their children, and more than half of mothers in Khartoum and Gezira prepared it with milk for breakfast and/or dinner. Between meal snacking is rare, both as reported by informants and confirmed by observation.

Table (3): The List of Food Reported by Mothers As Best Food to Children, Sudan, 1989

	Khartoum	Gezira	Kordofan
Cookies	45.8% (11)	20.9% (5)	16.7% (4)
Pudding	39.2% (7)	37.6% (9)	-------
Nasha	4.2% (1)	4.2% (1)	8.4% (2)
Commercial Weaning Food	-------	4.2% (1)	-------
Milk + Rice	12.5% (3)	33.5% (8)	-------
Cookies with Milk	-------	4.2% (1)	-------
Milk	16.7% (4)	24.9% (6)	20.9% (5)
Yogurt	4.2% (1)	-------	-------
Juices	8.4% (2)	-------	-------
Assida	-------	16.7% (4)	41.6% (10)
Taraka	-------	16.7% (4)	-------
Bread	8.4% (2)	4.2% (1)	-------
Kisra	12.5% (3)	12.5% (3)	8.4% (2)
Dough (Sharia)	-------	-------	4.2% (1)
Eggs	25.0% (6)	8.4% (2)	16.7% (4)
Meat	-------	-------	12.5% (3)
Meat Soups	4.2% (1)	-------	-------
Potato	4.2% (1)	12.5% (3)	12.5% (3)
Beans	8.3% (2)	-------	4.2% (1)
Cooked Rice	8.3% (2)	12.5% (3)	12.5% (3)
Lentils	12.5% (3)	-------	-------
Jam/Tehina	8.4% (2)	-------	-------
Adult Food	12.5% (3)	-------	16.7% (4)

Meals, both breakfast and lunch, are a social event where people (particularly men) find time to chat among themselves. The women prepare the best dishes for the men to carry out and share with the other men in the village, eating together at the home of one. The women eat their meals indoors with their children.

Strict separation of the sexes for meals, with the perceived best food going to the men and the rest to the women and young children, is a basic to the Sudanese eating pattern. The separation is not exclusive to food; it is not acceptable for unrelated men and women to touch or even to look directly at one another. Once a man enters his house all women not in his family must disappear; a polite man would not enter a home (except of relatives) if the man of the house was not present.

In El Nazer (Gezira), where the village had a common guest house, food for guests is prepared by all of the households, and any guests are joined by women or men from the village (depending on the gender of the guest) for meals.

B. Food Intake During Pregnancy

For fear of a large newborn and a complicated delivery, most mothers reported reducing their food intake during pregnancy and restricting certain food such as meat, milk, fat, sweets and sugar. Cravings for particular foods, and morning sickness during the first trimester are thought to increase the tendency to deliver small babies. In Kordofan many mothers reported avoiding eggs, because of a belief that eggs during pregnancy or infancy will delay the acquisition of speech. Hot peppers may be avoided, due to a belief that they may result in a bald newborn. In the other two regions (Gezira and Khartoum) the experience of food cravings may actually be advantageous, as several mothers reported craving (and receiving special portions of) meat and of porridge with yogurt. Quite a few mothers reported that their own cooking was not well tolerated during

pregnancy, and that their neighbors cooked food for them.

The majority of women in both Gezira and Kordofan reported visiting either a doctor or midwife during pregnancy, and a lesser percentage in Khartoum. Most of them did not mention receiving any nutritional advice during their visits. Most of the advice given was focussed on breastfeeding because of its nutritious value. Immunological advantages of breastmilk were mentioned by their mothers who seemed to be the main source of information, especially for primigravida.

C. Breastfeeding Practices

Every mother in the study identified breastmilk as important and essential for children. The universality of this understanding was underscored by the group discussions, which also went into more detail about reasons. About forty percent of mothers in each region mentioned the greater rates of illness in non-breastfed children and related breastmilk to the infant's growth. In Gezira, one third of the mothers considered non-breastfeeding as neglectful and demonstrated unhappiness in marriage. One third of the mothers in Kordofan could not accept the idea of not breastfeeding, and described the importance of breastmilk, whereas two women in Khartoum and three in Kordofan did not consider it a problem if the child could be bottle-fed.

Bottle feeding is known, but limited to unusual circumstances such as when the mother is out of town or, occasionally, with twins. Bottles were reported to be used by a minority of mothers (9.7 per cent in Khartoum, 1.4 percent elsewhere) to feed water with sugar and salt during the first week of life to supplement colostrum. Instead of bottles, mothers in Khartoum reported using cups (52.8 percent) or spoons (25 percent). In Gezira and Kordofan, 16 of 19 and 16 of 21 mothers respectively reported using cups.

The colostrum (*liba*) was reported to be given to the newborn by almost all mothers; 91.7 percent reported that they considered it useful to the newborn. Most mothers (87.5 percent) reported breastfeeding from the first day after delivery to stimulate lactation or to "open the baby's mouth."

Some mothers in Kordofan (20.1 percent) rub the newborn's mouth with fat or fat with sorghum flour to help him to open his mouth. Boiled water with or without sugar and salt is regularly given to the newborn in the first few days up to the fortieth day of life: this was reported by 79.2 percent of mothers in Khartoum, 87.5 percent in Gezira, and 95.9 percent in Kordofan. It is usually advised by the grandmothers (mainly in Khartoum) or by the midwives (in the other two regions). The reasons for this, as reported by the mother, include: it is nutritious (58.3 percent in Khartoum); it cools down the newborn's mouth (8.3 percent); it cleans the intestine (16.7 percent); it assuages the infant's thirst (12.5 percent); and provides food for the infant in the first days of life until lactation starts (40.3 percent). Other reasons mentioned was when the mother was too tired to breastfeed, in order for the child not to get dehydrated, or, to strengthen his mouth. A few mothers in Khartoum and Kordofan reported discarding colostrum after expressing it manually because they considered it "heavy" and liable to cause diarrhea in the infants. The mothers who expressed this belief had experienced a neonatal death, which they attributed to the colostrum.

There was no scheduling for breastfeeding. For this reason, when asked about the number of breastfeedings, most mothers found it hard to answer. This was especially true in Kordofan. In Khartoum, mothers' answers were: "when the baby cries" and in Gezira the majority answered "six times." The author observed that in all three regions, breastfeeding was continuously offered when the child was not crying. It seems that the mother will offer the breast to the child and give him/her the chance to decide whether to nurse or not.

Earlier studies have included anecdotal reports that girls are perceived to be more demanding to breastfeed than boys. A number of mothers in the current study interviews and group discussions expressed this belief, with the elaboration that girls cry more, suckle longer and should be breastfed the full two years because of their small body build and a short rib (*dalatha gasira*) (the latter comment is clearly derived from the creation story in the Koran, which is almost identical to the Old Testament Genesis version). Some mothers described the process of breastfeeding a girl as *hara* (hot) and painful. However, the perception was far from universal. Sixty-two percent of mothers in Kordofan reported no difference between boys and girls in this regard. Overall in the three regions, 45.6 percent of mothers expressed the belief that girls are more demanding; 50 percent thought there was no difference, and a few (2.8 percent) considered boys to be more demanding.

Most mothers expressed the belief that boys should be weaned at an earlier age (17 months was the normative age expressed) because prolonged breastfeeding is thought to compromise the infant's intelligence or make the brain "thicker" (apparently seen as more of a handicap for a boy than a girl). There was general consensus that girls should be breastfed for the full two years if possible because they are presumed to be weak and to have one fewer rib than boys. That this belief is supported by practice is shown in Table 4. There was no difference in age distribution by sex in the total sample.

TABLE 4. Mean age of children in months (N) by breastfeeding status, Sudan, 1989

		Girls	Boys
Receiving Breastmilk	yes	11.15* (26)	6.71 (21)
	no	22.33 (9)	22.81 (16)

* $p < 0.007$, $f=7.92$ (one-way ANOVA)

Breastfeeding during the night is not encouraged for boys, in order to encourage independence from the mother. Otherwise, breastfeeding is apparently on demand except that some women do not breastfeed at sunset. This relates to the Islamic belief that the devil is around at sundown. Prayers are not to be said as the sun is setting; similarly, children who are breastfed at that time of day are expected to grow up to be disobedient.

Twins are regarded as somewhat abnormal and in need of particularly cautious treatment. Both infants are breastfed at the same time, with a breast specified for each infant. The mother has to lie on her back to nurse both or to seek her relatives' help.

Breastfeeding of children other than the mother's own is a common practice in most of the Middle East, and was also practiced (although not commonly) in all of the study villages. The practice is more ceremonial than nutritionally important except in instances of maternal death or prolonged absence. Since Islam prohibits marriage between children nursed from the same woman, the practice is restricted by the need to preserve potential marriage partners. Children who are not true siblings but are nursed by the same woman are regarded as "milk brothers/ sisters"; the local definition of sufficient nursing to establish this relationship is five instances of breastfeeding.

Quality of breastmilk has been mentioned in previous reports to be of interest, since mothers may wean early if they perceive their milk to be inappropriate for the child. In Gezira, mothers clearly identified "light" (*Khafif*) and heavy (*Tak'iil*) milk, as has been previously described by El Tom (1987). Light milk is perceived to be dangerous for the child, while heavy milk is thought be nutritious. None of the informants were able to describe ways in which the quality of milk could be improved. A third type of milk (*mekata'a*, or interrupted) was related to breast infections or abscesses. It is felt that breastfeeding must be stopped in the case of this light, thin, and

interrupted milk. In Khartoum, these concepts were familiar but seemed not to be believed or acted upon.

Mothers in all villages agreed unanimously that weaning is defined as the permanent cessation of breastfeeding. The mean age of reported weaning in the entire sample was 18 months; it did not vary by region when tested by one-way ANOVA.

A common cause of early weaning is the mother's decision to fast during *Ramadan*. In contrast, weaning is generally avoided during the Islamic month of *Shaba'an* (the month before *Ramadan*). Another term for this month is *El gasir* (short). It is believed that a child weaned during this month may not survive, as is also true of a child born during the month of *Maulid*, the month of the Prophet Mohammad's birthday. *Shaba'an* is called the short month not because it has fewer days than other months, but because it is a busy month, preceding *Ramadan*, when there is much work to be done to prepare for the holidays. When a mother decides to wean a child, a safe weaning is ensured by sending some biscuits (cookies) to the *Fakih* to read some Koranic versus and pretend spitting on the food (*Azima* or spitting cure). The child could also be weaned by sending the child to his grandmother or by the mother avoiding her child. Application of mud, dough (*ageen*) or pepper to the breast either to distort its shape or its taste is another way of weaning. The child is expected to be nervous, irritable for a couple of days until he forgets breastfeeding and continues his life normally. Another method of weaning is to let the child become so hungry for such a long time that he will accept any food which is introduced.

There was widespread agreement among the mothers, both in interviews and group discussions, that weaning is necessary if another pregnancy is confirmed. The perception expressed was that the milk produced during pregnancy belongs to the fetus, since it is made from the mother's blood

which now belongs to the fetus. The danger in continuing to breastfeed is that the older (nursing) child will get diarrhea and die. The risk is perceived to be a function of the gender of the fetus (same-sex fetus will result in death of the older child), but since the gender of the fetus is unknown it is safest to wean as soon as a new pregnancy is perceived. Mothers' illnesses, including local breast infections, were also mentioned fairly often as potential reasons for early or abrupt weaning.

D. Supplementation

The age of first supplementation of breastfed infants varied somewhat by region and is shown in Table 5. Khartoum had the most reported number of early introduction of foods, Gezira showed the highest reported number of late introduction, and Kordofan was the most homogeneous in reporting four months as the appropriate timing. The three regions agreed that the food to be introduced should be light. Also in Khartoum, some mothers prefer to choose it cool. In Gezira and Kordofan, they advise to give digestible food. Most children in all three regions began tasting

Table (5): Difference in Age of Introducing Food in Three Regions, Sudan, 1989

Age of Food Introduction	Khartoum	Gezira	Kordofan
< 4 Mos.	45.5% (10)	33.3% (8)	13.0% (3)
4 Mos.	36.4% (8)	29.2% (7)	69.6% (16)
> 4 Mos.	18.2% (4)	37.5% (9)	17.4% (4)

$P < 0.05$
$X^2 = 11.25$

adult food by *talhis* (offering a bit of chewed food on the finger). Most of the mothers in Kordofan related the introduction of food to the child's pointing at or reaching for food; mothers in Khartoum and El Gezira universally related it to sitting. *Talhis* can be preceded by introducing juices like lemonade or goat's milk which the mothers preferred because they considered it lighter than cow's milk. They reported mixing it with water in the ratio of one-to-three.

In Kordofan, *assida* (45.9 percent) and *kisra* (20.8 percent) are the first adult foods introduced to the infants. There was no special food prepared for weanling children here, but it is not clear whether this was due to lack of availability of resources or to tradition. The mother considered *assida* and *kisra* nutritious. In Khartoum and Gezira, the earliest-introduced foods are biscuits, pudding, rice water and mashed potato (four to six months of age), with gradual progression to the family diet by about nine months.

There were several foods which mothers reported should not be given to infants or young children. Eggs were mentioned by most women as having the potential to cause delay in the acquisition of speech; however, it is not clear that they would not be given if they were available. (The researcher gave an egg to one mother who had reported that eggs should not be given; she immediately fed it to her child.) Several mothers said they would give eggs to their children if they had them. Green leafy vegetables and black-eye beans were also commonly mentioned as being inappropriate for children under one year of age; one mother thought these foods would harm the baby because they disagree with her; several thought they would cause diarrhea; and one mother reported that these foods were "hot" and therefore harmful.

Several mothers indicated that the best food they could offer to their child, if they could afford it, would be something sweet. They considered buying jam *(meraba)* and sweets made from sesame

for their children. The desirability of sweet foods seemed to be both an expression of socioeconomic status, since they are expensive, and of caring for the children since sweet foods were thought to be particularly nutritious.

E. Patterns of foods consumed by region and age

There are differences between regions in availability of foodstuffs at the household level. Table 6 shows the percent (and number in sample) of households reporting production of various crops and their availability in the home for consumption at the time of the survey. It can be seen that the Khartoum households are not involved in raising many crops, and the impact of differential production between Gezira and Kordofan is evident. Table 7 shows the food produced by households in the three regions. In contrast to crop production, more household production is taking place in Khartoum in goat's milk and eggs than in the other regions.

Table (6): Crops produced in the Three Regions and its availability at Household level, Sudan, 1989

Crops	Khartoum	Gezira	Kordofan
Millet	----	8.3% (2)	66.7% (16)
Sesame	----	----	12.5% (3)
Sorghum	4.2% (1)	54.2% (13)	25.0% (6)
Beans	----	----	12.0% (2)
Okra	----	12.5% (3)	4.2% (1)
Karkada	----	----	12.5% (3)
Vegetables	12.0% (2)	----	----
Sugar	4.2% (1)	----	----
Melon	----	----	12.0% (2)

Table (7): Household Products in Three Regions, Sudan, 1989

	Khartoum	Gezira	Kordofan
Cow's milk	--------	4.2% (1)	4.2% (1)
Goat's milk	54.2% (13)	37.5% (9)	29.2% (7)
Rob	--------	---------	12.5% (3)
Eggs	50.0% (12)	20.8% (5)	29.2% (7)
Chicken	4.2% (1)	16.7% (4)	12.5% (3)
Birds	8.3% (2)	4.2% (1)	--------

Table 8 combines data on market and home production to illustrate the variations in food availability by region. Clearly, households in Khartoum have access to the greatest variety of food products in spite of lower production.

In the 24 hours recalls, each mother was asked what the index child had eaten in the previous 24 hours, but no attempt was made to quantify intake. For analysis, foods were grouped into nine categories in addition to breast milk. The distribution of these food groups in the 24-hour recall by age of child and by region can be seen in Table 9. Fruits and eggs were seldom offered, and were generally unavailable. Juices, dairy products (chiefly milk), staple starches, beverages, and meat/vegetable mixtures were present in the diet of quite young children. Beans tended to be introduced much later. As has already been shown, one of the main reasons for the differences between regions is the differential availability of foodstuffs.

Although there are no significant differences in food intake by groups between regions, there were statistically significant differences among regions (chi-square analysis) for many individual food items. *Assida* was used more in Kordofan than in the other two regions. Bread was significantly more likely to be in the 24-hour recall in Khartoum than in the other two areas, but not more

Table (8): The combination of food production and food intake in the three regions, Sudan, 1989

	Khartoum	Gezira	Kordofan
Assida	++	++	++
Kisra	+	++	++
Sharia	+	-	-
Bread/Regeef	+	+	-
Logma	+	+	-
Rice	+	+	+
Milk	+	++	++
Rob	+	+	++
Yogurt	+	-	-
Milk and Rice	-	+	-
Milk Formulas	+	-	-
Tea and Milk	+	+	+
Tea (red)	-	-	+
Pineapple Juice	+	-	-
Karkada	-	+	++
Lemon	+	+	+
Orange	+	-	+
Melon	+	-	+
Guava	+	-	-
Biscuits	+	+	+
Pudding	+	+	+
Nasha	-	+	-
Pumpkin	+	-	-
Green Salad (green vegetables)	++	+	-
Okra	+	++	+
Eggplants	-	+	-
Potato	+	-	+
Green Leafy Vegetable	+	-	++
Beans	-	+	++
Egyptian Bean	+	-	-
Lentils	+	+	+
Weaning Formulas	+	-	-
Egg	++	++	+
Dried Meat	-	+	+
Meat	+	+	-
Meat Soups	+	-	-
Chicken	+	+	+
Birds	+	++	-
Tehina	-	+	-
Sesame	-	-	+

++ produced and eaten
+ produced or eaten
- not eaten

TABLE 9. Distribution of food groups among different age groups in three regions, Sudan, 1989

	Region	Age groups in months				
Food Group*		0-4 mo	5-8 mo	9-12 mo	13-18 mon.	≥19 mo
Egg	Khartoum	0	-	16.7% (1)	0	0
	Gezira	20% (1)	0	0	0	0
	Kordofan	0	0	0	0	0
Staple food	Khartoum	60% (3)	-	83.4% (5)	100% (2)	100% (11)
	Gezira	20% (1)	75% (3)	100% (5)	100% (2)	100% (8)
	Kordofan	50% (3)	75% (3)	60% (3)	100% (4)	100% (5)
Meat & Vegetables	Khartoum	40% (2)	-	66.7% (4)	100% (2)	63.2% (7)
	Gezira	20% (1)	75% (3)	100% (5)	50% (1)	100% (8)
	Kordofan	33.3% (2)	50% (2)	60% (3)	75% (3)	100% (5)
Beans	Khartoum	20% (1)	-	33.3% (2)	-	54.6% (6)
	Gezira	0	0	60% (3)	0	12.5% (1)
	Kordofan	0	0	20% (1)	25% (1)	20% (1)
Fruits	Khartoum	0	-	16.7% (1)	0	9.1% (1)
	Gezira	0	0	0	0	0
	Kordofan	0	0	0	0	0
Juices	Khartoum	40% (2)	-	33.3% (2)	0	54.6% (6)
	Gezira	40% (2)	0	20% (1)	50% (1)	62.5% (5)
	Kordofan	16.7% (1)	0	20% (1)	25% (1)	40% (2)
Dairy Products	Khartoum	60% (3)	-	50% (3)	50% (1)	90.9% (10)
	Gezira	40% (2)	0	40% (2)	50% (1)	50% (4)
	Kordofan	33.4% (2)	50% (2)	20% (1)	50% (2)	40% (2)
Baby food	Khartoum	60% (3)	-	50% (3)	0	63.7 (7)
	Gezira	80% (4)	75% (3)	60% (3)	50% (1)	50% (4)
	Kordofan	16.7% (1)	0	0	25% (1)	0
Beverages	Khartoum	0	-	50% (3)	50% (1)	81.8% (9)
	Gezira	20% (1)	100% (4)	40% (2)	50% (1)	75% (6)
	Kordofan	16.7% (1)	0	60% (3)	25% (1)	100% (5)

*Group 1 Egg
Group 2 Kisra, cooked rice, assida, potato, bread, regeef, logma, nasha, sharia
Group 3 Meat, meat soups, mulah sharmoot, mulah taklia, mulah, molukia, mulah weika, eggplant
Group 4 Egyptian beans, lentils, mulah black eye bean, mulah bean
Group 5 Guava, melon
Group 6 Lemon juice, orange juice, karkada, pineapple juice, grapefruit juice
Group 7 Cow's milk, goat's milk, artificial milk, yoghurt, milk & rice, milk & fenugreek and rice
Group 8 Pudding, cookies, weaning food, tehina, taraka, water with sugar and salt
Group 9 Tea (red), tea with milk

likely to be mentioned by mothers as appropriate food for young children. Milk consumption was more prevalent in Khartoum than in Gezira or Kordofan, where 66.7 percent of mothers reported milk in the 24-hour recall and only 37.5 percent in Kordofan and 33.3 percent in Gezira ($p < 0.05$, $X^2 = 12.9$). *Kisra* use was lower in Khartoum, inverse to wheat bread. Red tea was common in Kordofan but not used in other regions. Tea with milk was used more in Khartoum. There were no regional differences in reported use of eggs, meat, biscuits (cookies), or puddings.

There were significant constraints of availability. Potato and fava beans were significantly more likely to appear in diets in Khartoum; they are not available in the other regions. Both meat and egg were significantly more likely to be reported as appropriate for children than they were to appear in the dietary data. For example, 33.3 percent of mothers in Kordofan mentioned meat as being good for children, but only 4.2 percent reported that meat had been eaten in the previous 24 hours. Mothers in Gezira apparently underestimated the use of *kisra*; 63 percent reported that they gave it to their children routinely, while 70.8 percent of children had *kisra* in the previous 24 hours' intake data, also not statistically significant.

Table 10 summarizes, again by age group, the diversity of the diet for children receiving breast milk for those receiving cow's or goat's milk. It can be seen that diversity of the diet is reasonably wide, even for quite young infants, where most of the children were receiving more than one food item like custard, *kisra*, *assida*.

F. Feeding during illness

In Kordofan, the classification of diarrhea seemed to be particularly detailed and different from the other areas. Diarrhea was not considered a symptom but an illness, classified according to the perceived cause. Immediate "first aid" type treatment is the same for all diarrhea, i.e., a bit of pudding added to a glass of

TABLE 10. 24 hour recall and number of items in the diet in relation to age group, Sudan, 1989

	Age Group					
	0-4 mo	5-8 mo	9-12 mo	13-18 mo	≥ 19 mo	
Breastfeeding	N=15	N=7	N=15	N=7	N=3	N=47
Breastfed + 1 item	26.7% (4)	14.3% (1)	6.7% (1)	-	-	N=6
Breastfed + 2 items	20.0% (3)	14.3% (1)	6.7% (1)	-	-	N=5
Breastfed + ≥3 items	53.3% (8)	71.4% (5)	86.7% (13)	100% (7)	100% (3)	N=37
Cow or goat milk	N=7	N=2	N=6	N=4	N=14	
Milk + 1 item	-	-	-	-	-	-
Milk + 2 items	14.3% (1)	-	-	-	-	N=1
Milk + ≥3 items	85.7% (6)	100% (2)	100% (6)	100% (4)	100% (14)	N=32

boiled water is given to the child. If after two days the diarrhea does not stop, or the situation is getting worse, the efforts to diagnose the cause, and subsequent proper treatment are undertaken. They rarely refer the children to doctors but usually seek the advice of traditional healers. Diarrhea in a breastfed child is often attributed to the mother's eating hot pepper.

Diarrhea due to teething (*tasneen*) is profuse, greenish and watery with bad odor. It must be treated by a religious healer. Diarrhea due to cold (*lega*) is characterized by repeated watery stools with offensive odor, fever and vomiting. It is perceived to be caused by a change in weather, exposure to cold or by the mother nursing the child after coming from the field while she is still hot, without taking time first to cool down before nursing. The treatment is by cautery of the child on his back, or by fumigation (burning of a scented piece of wood placed in a hole in the ground, over which women squat naked covered with blankets, after rubbing the body with sesame oil. The child's body is rubbed with the sweat of the mother, to warm the child and expel the cold from his body. Treatment for this illness is, of course, expensive due to the wood, the oil, and the time involved.

Still a third type of diarrhea is *shaq*, or diarrhea accompanied with prolapse or fissure. Diarrhea accompanied with abdominal distention *(El Kambo)* is usually treated with bleeding and fumigation. Chronic diarrhea *(kabarana)* is diagnosed by the traditional healers when diarrhea continues more than about ten days, and after failure of treatments like dietary modification, bleeding and cautery. The usual treatment is circumcision, if the child is yet uncircumcised, without regard for gender or age. They advise withdrawal of goat's milk and encourage the mother to feed the child mulah rob, meat, chicken, pigeon and other nutritious food. Because of this major (although temporary) switch to a highly nutritious diet, the infection/malnutrition cycle is interrupted.

In Gezira and Khartoum, the mothers identified different types of diarrhea. *Sagta* is a greenish, watery diarrhea accompanied by colic and caused by change of weather or exposure to cold. It is treated with fumigation and preparation of custard (pudding) by dissolving it in water to be drunk by the child. The diarrhea caused by *tasneen* is treated differently than in Kordofan; the traditional healer cauterizes the child's gum and then rubs it with the mud mixed with water to cool. If the diarrhea is accompanied with fever and colic, the child is referred to the doctor. Gastroenteritis *(mokofar)* is caused by excess feeding. The mother boils Shammar with coriander (*kusbara*) and *dilka* (a kind of good odor fumigation) and the child has to drink it until the diarrhea stops, otherwise this recipe will be repeated. If the gastroenteritis ends with dehydration, a drink made from boiling ginger *(ganzabeel)* with bread is given as a replacing fluid. Diarrhea following a meal is usually related to 'evil eye' and the child is treated by a religious healer.

Measles is one of the greatest killers, and most feared illnesses, in the Sudan. One of the families in this study had experienced the deaths of three children from measles. The illness is seasonal, with peak prevalence in summer (from May to September). It is characterized by high fever, diarrhea and the characteristic rash. Diarrhea is considered a good prognostic sign because it helps the body to get rid of

the measles. Complete withdrawal of food and drink, except for breast milk, goat's milk and *kisra* is common during measles. The duration of prohibition of meat, vegetables and fat varies from 15 up to 40 days. They accompanying fever is treated with fumigation and *"Harjal" (Solemnostemma argal).* Goat's milk is used locally for the skin eruption. For the eye redness, onion with sorghum flour is mixed and put in the eyes.

When mothers describe the onset of illness they usually remember the child crying (61.1 percent), anoretic (40.3 percent), irritable (34.7 percent), generally weak (36.1 percent), refuses playing (36.1 percent) or being sleepy (11.1 percent). They also report more than one symptom together. The subsidence of the illness is by disappearance of these symptoms, especially anorexia.

The data in Table 11 showed variation in infant feeding practices in response to diarrheal diseases. Most of the mothers in Kordofan and Gezira did not change their infant breastfeeding before or after diarrhea. If the child is supplemented or weaned, then the mothers in Khartoum and Kordofan prefer to change it during diarrhea and return it back after the illness. In Gezira no change in food is reported (41.7 percent). In Khartoum there were women with access to medical services who kept breastfeeding as before illness and replaced adult food by increasing the fluid intake.

Many of the mothers mentioned asking for their husband's advice when the child is sick (34.7 percent in Khartoum and Kordofan, higher in Gezira). Twenty-five percent of them reported asking their own mothers, with a higher percentage in Kordofan. Seventy-eight percent of the mothers reported the fathers' role in buying the medication.

Table (11): Feeding Practices During and After Diarrhea in the Three Regions, Sudan, 1989

	Khartoum	Gezira	Kordofan
Breastfeeding during diarrhea			
continuous	20.8% (5)	62.5% (15)	54.2% (13)
decrease	20.8% (5)	8.3% (2)	4.2% (1)
stop	-------	--------	8.3% (2)
increase breast with fluids	47.7% (10)	--------	4.2% (1)
Breastfeeding after diarrhea			
continue	75% (18)	70.8% (17)	70.8% (17)
decrease	4.2% (1)	--------	--------
increase	4.2% (1)	--------	--------
Food pattern during diarrhea			
stop food	41.7% (10)	8.34% (2)	20.8% (5)
decreased	8.3% (2)	4.2% (5)	--------
stop fat	4.2% (1)	--------	12.5% (3)
no change	25% (6)	41.7% (10)	20.8% (5)
special food	16.7% (4)	33.3% (8)	25% (6)

G. Perceived thriving/health/nutritional status

Some attempt was made to ascertain local definitions of health. A preliminary conclusion is that growth (in weight and length) is perceived to be closely linked to health and thriving. Sick children are seen to be apathetic and to lose their appetite; healthy children are seen to be growing in length and weight, and to be active. Active children are also seen as at risk and in need of special care, since they are prone to accidents.

Interviewers were asked to rate each study child in terms of general health and thriving. The terms they used can be roughly translated as "doing well," "fair-to-middling" and "in poor condition." These were the terms which interviewers spontaneously agreed upon when shown pictures during the training sessions of children who were healthy, mildly and severely malnourished. The interviewers rated seven of the 102

children whom they rated as in poor condition, 40 as in fair condition, and 55 as doing well. There were no significant differences in age among these groups (Table 12) nor was there any significant regional variation in the distribution of this variable (Table 13).

TABLE 12. Mean age of children in relation to the interviewer's perception of child's health

Interviewer's Perception of Nutritional Status	Mean age ± SD (months)
Doing Well	18.1 ± 12.1 (n=55)
Fair Condition	20.5 ± 11.6 (n=40)
Poor Condition	17.7 ± 11.1 (n= 7)

n= 102
p= 0.61 (ONE-WAY ANOVA)

TABLE 13. The infant's interviewer-rated health of children by areas, Sudan, 1989

	Doing Well	Fair Condition	Poor Condition
Khartoum	58.3% (14)	33.3% (8)	8.3% (2)
Gezira	50% (12)	41.7% (10)	8.3% (2)
Kordofan	54.2% (13)	41.7% (10)	4.2% (1)
Total	54.2% (39)	38.9% (28)	6.9% (5)

N=72
X^2=0.84
P=0.93

Table 14 shows the foods present in the 24-recall by categories of the "thriving" variable, for children older than nine months. This age was chosen because only one child was rated "poor" less than nine months.

The only significant variables were that children who were doing well were less likely than others to be receiving tea or tea with milk, and "baby foods" including pudding, cookies, commercial weaning foods, and sugar water. Instead they received household foods.

TABLE 14. Relationship between food groups and interviewer-rated health status for children older than 9 months, Sudan, 1989

Food Group		Doing Well	Fair Condition	Poor Condition
Group 1	Eggs	0	0	25% (1)
Group 2	Staple food	91.3% (21)	95% (20)	100% (4)
Group 3	Veg. & Meat	78.3% (18)	81% (17)	75% (3)
Group 4	Beans	30.4% (7)	33.3% (7)	25% (1)
Group 5	Fruits	4.3% (1)	4.8% (1)	0
Group 6	Juices	34.8% (8)	42.9% (9)	50% (2)
Group 7	Dairy Prod.	56.5% (13)	52.4% (11)	50% (2)
Group 8	Infant Food	34.8% (8)	42.9% (9)	50% (2)
Group 9	Tea & Tea with milk	56.5% (13)	71.4% (15)	75% (3)

Group 1 Egg
Group 2 Kisra, cooked rice, assida, potato, bread, regeef, logma, nasha, sharia
Group 3 Meat, meat soups, mulah sharmoot, mulah taklia, mulah, molukia, mulah weika, eggplant
Group 4 Egyptian beans, lentils, mulah black eye bean, mulah bean
Group 5 Guava, melon
Group 6 Lemon juice, orange juice, karkada, pineapple juice, grapefruit juice
Group 7 Cow's milk, goat's milk, artificial milk, yoghurt, milk & rice, milk & fenugreek and rice
Group 8 Pudding, cookies, weaning food, tehina, taraka, water with sugar and salt
Group 9 Tea (red), tea with milk

H. Access to Communication Channels

In Khartoum, 41.7 percent of the households do not have radio and do not listen to the radio in comparison to 33.3 percent in Gezira and 66.6 percent in Kordofan ($p<0.05$). Because more women in Kordofan (62.5 percent) are working in the field in the morning, fewer of them reported listening to the

radio during the morning. In Gezira, access to mass media is good. Sixteen percent of women listen to radio both in morning and afternoon while 41.7 percent of women prefer to listen to the radio during the morning. In Khartoum, 16.7 percent do not prefer a certain time, 25 percent listen to the radio both morning and afternoon.

The preferred programs in the three regions differ. Women in Khartoum (33.3 percent) prefer listening to songs and in Gezira (54.2 percent) prefer the Family Program (*Pamamig El Uzra*). In Kordofan, where they do not listen much to the radio, no specific preferences were mentioned but two women reported listening to agricultural programs *(Paramig Zera'aia)*.

None of the families studied in Kordofan reported having a television set but men watch television occasionally when they visit El Obyeid. In Khartoum, 20.8 percent and in Gezira (16.7 percent) have television sets. In these two areas it is clear that women do not have special preference. Educational and religious programs were only mentioned in Gezira.

Seventy-five percent of the households studied in Khartoum buy newspapers versus 45.8 percent in Gezira and 20.8 percent in Kordofan. This difference is due to the big difference in education level between men in Khartoum and in Kordofan (Figure 1). Ninety-one percent of women in Kordofan had no education and so it was not strange when they could not identify the names of the newspapers or magazines.

Most of the newspapers and magazines reported were foreign. Since the curfew only one military newspaper was produced on a daily basis except Saturday. These were read mainly by the father and perhaps the children but seldom by women in the three regions.

I. Access to Health Information

Seventy-one percent of women in Gezira reported attending nutritional seminars presented by midwives, doctors, health workers or nutritional officers. Twenty-five percent of women in Khartoum reported attending similar seminars. This difference could be due to the lack of availability of medical services in the other two regions. Nutrition education through mass media can reach a large number of women, but not all because of the isolation of the communities and the women in particular, also it could be helpful in certain regions like Gezira and Khartoum.

V. Discussion

A. Breastfeeding

Nearly all infants in the Sudan are breastfed. It is a practice encouraged by grandmothers and midwives. Colostrum is in most cases given to the infants, but other substances are often given in the first days of life as well. The most common is water with salt and sugar added; it is considered nutritious for the infants. There is little variation by region in this practice. In Kordofan only, newborns are also given a dough made from fat at this time to "open their mouths".

The SERISS data suggested that girls are better nourished than boys; in our small quota-based sample this was not the case. However, in Khartoum and Gezira but less in Kordofan it was clear that girls are expected to be breastfed longer than boys, because girls are both demanding and weak. The difference in average ages of breastfed girls and boys provides evidence that this belief leads to action. The belief that milk can be "light" or "heavy" is retained primarily in Gezira, and seems to be disappearing from the other two regions.

B. Weaning

Descriptions of weaning provided by mothers in this study indicate that it is generally abrupt, involving

removal of the child to another location, or administering substances to the breast which will make it unrecognizable or unpalatable. Abrupt weaning is implicated in the SERISS data as being responsible for much of the severe malnutrition observed. However, mothers wean children at the onset of a subsequent pregnancy to protect both the weaning and the fetus. They believe that both the milk and the fetus are formed from the blood and are therefore in competition; especially a same sex fetus will harm the weaning, and since one doesn't know the sex of the fetus it is judicious to wean. The annual Islamic calendar affects weaning, since it is considered inappropriate to wean during Shaba'an or Maulid months, and mothers want to have their children weaned before Ramadan so that they may participate in the fasting (it is too difficult to fast and nurse at the same time). This is a potential area for behavioral change: since lactating women are forgiven for not fasting, and the Koran states that a child should be breastfed for 24 months, it might be possible for religious leaders to encourage women to continue nursing rather than weaning the child before the fast.

C. Supplementation

Supplementation of breastfeeding is widespread in the first six months of life in all regions. The age of first supplementation is the lowest in Khartoum, middle in Kordofan, and highest in Gezira, but all supplement before six months. The food which is first introduced varies by region. Mothers in Khartoum and Gezira prefer to give mashed potatoes, cookies, pudding, and rice water, although the timing is different. In Kordofan there are no special foods for infants; the first foods given are mostly *assida* and *kisra*. Mothers in all three regions classified foods that should be chosen for infants as "light", in Khartoum, the secondary category was "cold", whereas in Gezira, the secondary category was "easily digestible."

The dietary diversity of infants in Khartoum was far greater than that for the other two regions. This study did not directly assess the relative nutritional value of these choices. The widespread reliance on the

category "light," and the apparent willingness to increase variety when it is available suggests that potential may exist to modify mothers' choices of supplementary foods to make them more nutritious for the infant, as long as the suggestions take into account the locally available foods. While many individuals report that eggs are not healthy for young infants, this may be more a problem of availability than belief, and deserves more investigation.

D. Feeding the mother during pregnancy

Mothers receive little advice from health care providers regarding food consumption or health during pregnancy. Most of the advice comes from their mothers, especially for primigravidas. In later pregnancies, midwives are more important, and the mother has her own experience to rely upon. In general throughout the three regions, women choose to limit food consumption to insure small babies and easy deliveries. However, it is believed that food cravings should be satisfied; this can be beneficial when nutritious foods are craved.

E. Food Intake and Availability

Food intake showed regional differences. Aseida was highly consumed in Kordofan whereas bread was

meals. The evening meal was light when present, and the size and presence of that meal appeared to be related to food availability. The information shown in Table 6 suggests that food availability is a major factor in the variations in food intake found among the three regions. While the method of sampling study households did not provide a representative sample to give good estimates of prevalence rates, it was designed to maximize the discovery of diversity. Thus the differences in dietary diversity shown in the three regions can be accepted as representative of the situation.

F. Feeding during Diarrhea

In all three regions, most mothers believed that children should continue to be fed breastmilk during diarrhea; however, the supplementary foods were frequently stopped. Feeding during diarrhea could be enhanced if a more nutritious and easily digestible supplementary food could be found.

G. Access to Communication Channels

In Khartoum and Gezira, many women listen to the radio on a regular basis. Although perhaps not the majority, the number of women who could be reached through this channel would be quite large. In Kordofan, far fewer women listen at this time due both to a lower availability of radios and to the fact that women are at work in the fields. Women in Gezira and Khartoum indicated preferences for music programs and family programs (*Pamamig El Uzra*). Both of these preferences could be used to guide the type of message developed and the program used to convey it. Sudanese mothers take the majority of responsibility for feeding decisions for their children, and thus these mothers should be the target of the messages.

H. Access to Health Information

Due to the large numbers of women not accessed by mass media communication channels, especially in Kordofan, other mechanisms for communication are equally important. Many mothers in Gezira reported

attending the nutrition seminars held locally, and seemed to enjoy them. Similarly, the willingness of the local women to enter into group discussions in all the villages surveyed suggests that this local level mechanism may be one of the most successful means for communicating with women. Fathers are also important in the decision making process regarding children, but their involvement seems to be more focussed on dealing with the external system (i.e. taking the child to the doctor). Decisions based on the household food supply seem to remain more in the mothers control, even when the fathers do the actual purchasing.

VI. Recommendations

Even in these three areas which would not be classified during the study period as areas of famine or acute food shortage, there were very significant constraints of food availability on family meal patterns and on the quality of diets. Mothers would be eager and enthusiastic to act on educational advice only if the food and money necessary to implement the advice were available.

The general infant feeding patterns revealed by this study are sound. Breast feeding, followed by gradual introduction of digestible foods from those available at four to six months, and transition to the family diet by nine to twelve months, is quite a reasonable pattern and should be reinforced. In fact, efforts could be made to preserve traditional patterns and to avoid the potential damage which might be caused by introduction of infant formulas, bottles, and special infant foods, although modification of or supplementation to existing choices may be warranted.

A major area for potential educational intervention is in that of early and abrupt weaning. Primary causes are pregnancy, fasting, maternal illness and child illness.

The relative isolation of the communities and of women in particular argue for using both mass media (especially radio) and word-of-mouth and direct contact modes of delivering educational messages. Media may be most appropriate for messages directed at fathers, who should not be ignored.

Nutrition education workshops for traditional midwives could be helpful in teaching the mothers, since 45.8 per cent of mothers in the present studies reported the receiving of advice after delivery from the midwife.

An agricultural education and intervention may be appropriate in the form of encouraging plants of more nutritious crops which suit the environment, and to increase the variety of food available to the households.

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Appendix A
Interviewer Guides

المسح الخاص بتقييم اساليب تغذية
الاطفال في الحضانات المرتبطة المختلفة

دليل رقم (١)

معلومات عن الاسرة :-

التاريخ ..... رقم الاسرة .....

١- اسم الاب .....

عمر الاب ..... مستوى التعليم .....

وظيفة الاب .....

٢- اسم الام ..... عمر الام .....

مستوى التعليم ..... المهنة .....

٣- عدد الاطفال اقل من ٣ سنوات في الاسرة .....

رقم الطفل	الاسم	النوع	العمر	الحالة الصحية

ملحوظة :- (يجب تسجيل الاطفال من الاصغر وليه الاكبر)
(عند عدم وجود شهادة ميلاد يجب على المستجوبة استدراج الام لمعرفة تاريخ الميلاد على حسب المصطلحات المحلية التابعة بالمنطقة)

رأى المستجوبة في تاريخ الميلاد المذكور عند عدم وجود شهادة ميلاد ومقارنة التاريخ المذكور اذا كان يتناسب مع الطفل الموجود أمامها .....
.....
.....

٤ ــ اسماء الام من بقية افراد الاسره الموجودين بالمنزل وعلاقتهم بالطفل ؟

صلة القرابة	النوع	العمر	مستوى التعليم	المهنة

٥ ــ اذا كانت الاسرة صغيرة هل في اسرة من اقاربهم في السكن المجاور ؟

نعم ( ) لا ( )

اذا كانت الاجابة بنعم اقاربها هم ناس منو ؟

---

٦ ــ منو المسئول الأول عن رعاية الطفل ؟

---

٧ ــ منو كانس بيساعد في رعاية الطفل ؟

---

٨ ــ زاي المستجوبه في حالة الطفل الصحيه

	الطفل (١)	الطفل (٢)	الطفل (٣)
صحته كويسه	( )	( )	( )
وسط	( )	( )	( )
عنده سوء تغذية	( )	( )	( )

١) عندكم اى ارض بتزرعوا اى نوع من الماكولات ؟

نعم ( ) لا ( )

٢) اذا كانت الاجابه بنعم اساليها هى شنو وهمع الموجود منها شنو ؟

نوع الانتاج	فى الوقت الحالى موجود ام لا	
	نعم	لا
الذرة	( )	( )
.....	( )	( )
.....	( )	( )
.....	( )	( )

٣) عندكم اى حيرات بتستفيدوا من منتجاتها ؟

نعم ( ) لا ( )

: اذا كانت الاجابه بنعم اسأليها عن نوع الانتاج الموجود منها شنو فى الوقت الحالى ؟

نوع الانتاج	فى الوقت الحالى موجودة ام لا	
	نعم	لا
.....	( )	( )
.....	( )	( )
.....	( )	( )
.....	( )	( )

٤) فى اى شئ من الانتاج (حيوانى او نباتى) اتباع اليوم ده ؟

نعم ( ) لا ( )

: اذا كانت الاجابه بنعم اسأليها هو شنو ؟

.....

.....

.....

: فى اى اغذيه بتقدم للاسرة بطريقه منتظمه ؟

نعم ( ) لا ( )

دليل رقم (٣)

صحة البيئة المنزلية والمطعمات :

(١) المنزل —

: مبنى كامل ( )
: جزء من مبنى ( )
: لا يوجد مبنى ( )

(٢) نوع الباب —

: باب حديد ( )
: باب خشب ( )
: لا يوجد ( )

(٣) اسألها : اذا كان عندهم مواشي داخل المنزل

نعم ( ) لا ( )

(٤) اسألها عن عدد الغرف بالمنزل —

(٥) ارسم خريطة كروكية للمنزل وسمي فيها الغرف

(٦) المطبخ :

: هل يوجد ؟

: اذا كان يوجد هل به سقف ؟

(٧) المنزل فيه ذبابيك والتهوية فيه كويسه ؟ نعم ( ) لا ( )

(٨) اسألها اذا كان عندهم اي حيوانات بالمنزل ؟

: اذا كانت الاجابة نعم اسألها اذا كان عندهم جزء خاص بالحيوان أم لا ؟ . نعم ( ) لا ( )

اذا كانت في حيوانات اسألها عن نوع الحيوانات ده شنو وعددها

واذا كان عندها اي تعليق اذكرنها —

	توجد	عددها	التعليق
حيوانات كبيرة			
حيوانات صغيرة			

دليل رقم (٣)

ملابس الام والطفـــــل :

	نعم	لا	التعليـــــــق
: هل ملابس الام ملائمه لحالة الطقس ؟			
: وهل ملابسها فى حالة جيده ؟			
: هل الام لابسه اى ذهـب ؟			
: هل ملابس الام انيقـــــه ؟			
: ملابس الطفل او الطفله جاهزه ؟			
: الطفـل لابس حذاء ؟			

النظافـــــه :

	نعم	لا	التعليـــــــق
: لاحظـى اذا كان المنزل نظيـــف			
: لاحظى اذا كانت العده نظيفـــه			
: لاحظـى اذا كانت ايدى الام نظيفـه اثناء وجودك بالمنزل .			

٤/ تابع الدليل رقم (٢) ٠

٤/ اسالبها: من اين يتحصلون على ماء الشرب ؟

.....

.....

٤/ اين يحفظون ماء الشرب ؟

.....

.....

٤/ هل الماء يحفظ بطريقه صحيه (نظيفه ونقيه)

.....

.....

.....

٤/ اذا كانت توجد حيوانات بالمنزل اسالبها هل ربة الحيوانات يحفظ داخل المنزل ويستعمل كسماد او يرمى خارج المنزل ؟

.....

.....

.....

الطبيـــــــخ :

٤/ عدد الاوانى المستعمله فى الطبخ (معدنيه بلاستيك الخ)

.....

.....

٤/ هل هنالك اوانى كانت لاعداد الغذاء الخاص بالطفل ؟

.....

.....

٤/ نوع الوقود .....

.....

.....

دليـل رقـم ٤

الرضاعـة الطبيعيـه وتغذيـة الطفـل :ـ

(١) بعـد الولادة مباشـرة طفلك ادوه شـنو ؟

(٢) العمله ليـه منـو ؟

(٣) التحك تديهـو ليـه منـو ؛ وليـه ؟

ادوه شـنو	الحلو ليه منو	التحك تديهو منو	السبب

(٢) في الايام الاولى بعد الولادة اتعمل لطفلك شنو ،ادوه شنو ؟

التحـك منـو ؟

ليـــه ؟

اليـوم	الحاجة الادوها ليهو او الاتعملت ليه	التحك منو	السبب

(٤) اذا الام ما ذكرت لبن الشطر أساليبها هل رضعت طفلك دا ؟

نعم ( ) لا ( )

(٥) اذا شربت طفلها اى حاجه غير لبن الشطر بتديها ليهو بس شنو ؟

---

(٦) اذا كانت الام بترضع أساليبها متين أول مرة مسكتى طفلك الشطر ؟

وليه ؟

متين ---

ليه ---

(٧) بعد الولادة بمدة قدر شنو جاك اللبن ؟

---

(٨) مل اديته اللبن الاول ؟ ((الثرثوب ـ اللبا))

نعم ( ) لا ( )

اذا أجابت بنعم اساليبها ليه اديته ؟

اذا اجابت بلا أساليبها ليه ما أديتيه ؟

---

(٩) اذا شفطت لبن من شطوها أساليبها قدر شنو ؟

---

(١٠) اذا اجابت بنعم أساليبها ؟

كان مرفق من الدايه انه اللبن الشفطيه دا كويس لصحة الطفل فى الولادة الجايه بتديه ليه ولا ما بتديه ؟

نعم ( ) لا ( )

× اذا اجابت بنعم أساليبها ليه بتديه ليهو ؟ ---

× اذا اجابت بلا أساليبها ما بتديه ليهو ؟

---

(١١) فى فترة الحمل مشيتى الدكتور او دايه او اى زول عشان ينصحك ؟

- نعـــم ( ) لا ( )

× اذا أجابت بنعم اساليها : هل كلمك ، كلمتك عن الرضاعه من الشطر ؟

نعـــم ( ) لا ( )

× اذا أجابت بنعم اساليها : قال ليك ، قالت ليك شـــنو ؟

× فى زول من أهلك كلمك عن الرضاعه من الشطر قبل الولادة اوبعد الولادة ؟

نعـــم ( ) لا ( )

× اذا أجابت بنعـــم اساليها قالوا ليك شـــنو ؟ ---

---

(١٢) بعد الايام الاولى من الولادة ولحدى الاربعين اديتى طفلك شنو ؟

((حاولى حققى محاها موفيه لحسنيه)) ---

× اذا أجابت بنعم اساليها ــ متين ــ وكيف ــ وكم مره ــ والنصحك منو ؟

الشئ الاديتيه	متين	كيف	عدد المرات	النصحك منو

(١٣) اذا الام ما رضعت خلال الاربعين يوم أسأليها ليه ما رضعتي ؟

ومنو القال ليك ؟

ليه --

منو القال ليك --

(١٤) رايك شنو في عدم الرضاعة من الشطر ؟

----

(١٥) اذا كانت الام بترضع اساليها عن عدد الرضعات في اليوم ؟

----

(١٦) هل بترضع من الشطرين في الرضعه الواحده ؟

نعم ( ) لا ( )

(١٧) اسالي الام اذا بتدي الطفل اي سوائل أخرى ؟

نعم ( ) لا ( )

(١٨) السوائل دي زي شنو - بتعمليها كيف - بتديها ليهو كيف عشان شنو بتديها ليهو ؟

السوائل	طريقة التحضير	دورية التغذية	السبب

(١٩) هل الام بتفتكر ان لبنها مناسب لطفلها (خفيف ٪ سهل الهضم ٪ لا يكفي)

نعم ( ) لا ( )

اذا كانت الاجابه بلا اساليها هل هنالك طريقه لاصلاح او لتعويض اللبن الخفيف

× أسألى الام هل عندك فرق بين البنت والولد فى الرضاعه (الفـــترة)

---

(٢٠) أسألى الام اذا بتدى الطفل أى اكـــل قاس ؟

نعـــم ( ) لا ( )

× الاكل دا شنو ـ بتعملى كيف ـ بتدى ليـه كيف

عشـــان شـنو ـ ولـــيه ؟

الاكـــل	طريقة التحضير	طريقة التغذية	السبب

× فى عمر كـم بديتى لحسّى طفلـك ؟ (( ))

× كيف عرفتى انـه ده هـو الوقـت المناسب لاضافـة أغذيـة غير السوائل لطفلـك

× الاكل دا المفروض يكون كيف ؟ ((خفيف ـ بارد ـ سهل الهضم))

× تفتكرى ايه أحسن أكل المفروض تبتدى بيه شلو ؟

× بعد فترة الاربعين وانى اليوم بتغذى طفلك كيف ؟

(السؤال فقط للاطفال اقل من سنه)

العمر	الرضاعة من الثدى	عدد المرات	أخرى	عدد المرات
بعد الاربعين ـ شهرين				
٢ ـ ٣ شهور				
٣ ـ ٤ شهور				
٤ ـ ٥ شهور				
٥ ـ ٦ شهور				
٦ ـ ٧ شهور				
٧ ـ ٨ شهور				
٨ ـ ٩ شهور				
٩ ـ ١٠ شهور				
١٠ ـ ١١ شهور				
١١ ـ ١٢ شهور				

(٢١) اذا الام وقفت الرضاعه من الشطر خلال السنه الاولى ؟

× اساليبها ليه وتقديها (معلل جديد) وكان عمره كم ؟ وشو القال ليك وتقيمها ؟

× اساليبها هل هنالك فرق بين الولد والبنت فى الفطام (اسالى الام معنى الفطام)

(العمر الذى يفطم فيه ونوع الغذاء الذى يقدم فى تلك الفترة)

(٢٢) اذا كانت الام بتعدى الداخل اكل اساليبها بتديه شو ؟ (اذا كان عمر اكبر من سنه)

بتعمليه كيف ـ بتاكليه كيف ـ وليه بتديه ليه ؟

نوع الاكل	طريقة التحضير	طريقة التغذية	السبب

(٢٣) رأيك شو في طريقة أكل طفلك ؟

× هل عندك أي مشكلة في تغذية طفلك ؟

نعم ( ) لا ( )

× اذا أجابت بنعم تفكري ممكن تحليها ؟ ---

× اذا اجابت بلا هل سمعتي باي طفل عنده مشكلة في التغذية ؟

نعم ( ) لا ( )

× تفكري مشكله زي دي حلها يكون كيف ؟ ---

× هل الام تفكر انها قادره على تحسين صحة طفلها ؟

نعم ( ) لا ( )

× اذا اجابت بنعم اسألها كيف ؟ _____

_____

_____

× اذا اجابت بلا استأذنها لمه ما بتقدر ؟

_____

_____

_____

دليل رقم (٥)

ملحوظـــــه ((من هذا الجزء يجب ملاحظة الزمن بـــــدء البدايـــــه والنهايـــــه)) .

تحضير الوجبات والملاحظات عن الاطعمـــــه :-

أ: تحضـــير الوجبات :

١) في اثناء وجودك بالمنزل هل شاهدتي الام وهي بتحضـــــر في اي طعام (للاسرة أو لطفلهـا) ؟

نعـم ( ) لا ( )

٢) اذا كانت الاجابه بنعم كانت شـو ؟

.....

.....

٣) هل الام غسلت ايديها قبل واثناء تحضير تلك الوجبه ؟

.....

٤) هـل المكان والاواني الكانت بتحضر فيها الوجبه كانت نظيفـه ؟

.....

.....

٥) ماهو مصدر المـاء المستعمل في تجهيز الوجبـه ؟

.....

.....

٦) اي ملاحظـــات اخـــرى

.....

.....

.....

.....

ب: الاطعـــــام :-

: اثناء وجودك بالمنزل هل شاهد تـي الام وهـــــي بتاكـــل طفلهـا: أو لطفلتهـا؟

نعـــم ( ) لا ( )

س/ اذا كانت الاجابة بنعم نوع الطعام كان عندو ؟

.....

.....

س/ اثناء ماكنتي موجودة بالمنزل واحضروا الاكل هل الام والطفل غسلوا ايديهم ؟

نعم ( ) لا ( )

س/ هل الطفل ياكل او ياكلوه ؟

باليد .....

الملعقة .....

المزاج .....

اخرى .....

س/ كيف تتعامل الام اثناء اطعام طفلها ؟

.....

س/ كيف يتعامل الطفل اثناء اطعامه ؟

.....

س/ كمية الوجبة الواحدة ؟

.....

.....

س/ كم من الزمن تستغرق الأم في اطعام الطفل ؟

.....

.....

ج: الرضاعة الطبيعية :

س/ اذا كان الطفل يرضع هل الام يستعمل الثدين في الرضاعة الواحدة ؟ نعم ( ) لا ( )

س/ لاحظي اذا كانت الام تنظف الحلمة قبل البدء في الرضاعة

.....

٤/ بعد انتهاء الرضاعة لاحظي اذا كانت الام بتغطي الثدي (الحلمة) واللا لا ؟

.....لا.....

الرضاعة الصناعية :-

عدد الرضعات اثناء اليوم وكميتها قدر شو (اذا كانت هنالك رضاعة صناعية)

عدد الرضعات .....

الكمية : .....

٥/ لاحظي نظافة المزازة وايضا لاحظيلي بعد الانتهاء من استعمالها هل بتغطي او بتترك من غير غطاء ؟

.....

.....

٦/ اي ملاحظات اخرى .

الدليـــل رقم (٦)

الامراض التى تصيب الطفل نموه وصحتـــــه :ـ

أ ـ استفسار عن الحاله الصحيـــه للطفـــــل :ـ

١ـ اسالى الام رايها شنو فى الحاله الصحيه لطفلها فى الاسبوعـين الاخويين ؟

.....

.....

* فى حالة الطفل مريض اساليها عيان بى شـــنو ؟

.....

.....

* والســـــبب شـــــنو ؟

.....

* لاحظى اذا كانت الام منزعجـه بحالة طفلهـــــا ؟

نعـــم ( ) لا ( )

* رأى المستجوبه فى حالة الطفل بالمقارنه مع ما ذكرته الام ؟

.....

.....

.....

٢ـ اسالى الام هى بتعمل شنو فى حالة مرض طفلها ؟

.....

.....

* اساليها بتستشـــــير منو فى حالة مرض طفلها ؟

.....

.....

* اساليها اذا كانت بتستعمل اى علاج بلدى قبل ماتمشى للدكتـــــور ؟

.....

.....

٣ـ اساليها منو البودى الطفل للدكتور ؟ وهل بتنتظر ابوه وعمه ، خاله جلشان يوديهه الكتور ام تروح هى ؟ .....

.....

.....

.....

٤- اساليبها نحو البيشترى الدواء فى حالة مرض الطفـــل ؟.....

.....

.....

* اساليبها اذا كان ماعندهم قروش بياخذوا قروش من منـــــو ؟

.....

.....

* استفســـــارات عن نمو الطـــــفل :-

٥- اسالى الام اذا هى بتفتكر انه طفلها نموه طبيعـــى ؟

نعم ( ) لا ( ) الطفل رقم (١)

نعم ( ) لا ( ) الطفل رقم (٢)

نعم ( ) لا ( ) الطفل رقم (٣)

* اذا كانت الاجابـــه بنعم اساليبها ليـــــه ؟

.....

* اذا كانت الاجابه لا اساليبهـــــا ليـــــه ؟

.....

.....

٦- اسالى الام راشها شنو فى نمو طفلها بالمقارنه لاطفالها الاخرين اذا كان عندها اطفال اخرين واذا ماعندها اطفال خليها تقارن مع بقية اطفال الحله . (ضعيف) اصغر حجما ، حاله خاصـــه) ؟

الطفل رقم (١)	الطفل رقم (٢)	الطفل رقم (٣)	

٧- هل الام عندها كرت متابعه نمو (خاصة بالطفـــل)

نعم ( ) لا ( ) الطفل رقم (١)

نعم ( ) لا ( ) الطفل رقم (٢)

نعم ( ) لا ( ) الطفل رقم (٣)

الدليل رقـــم (٦)

(ج) الاصابـه بالامـــراض :ـ

بـ: اسالى الام هل فى الاسبوعين الاخيرين طفلها أو طفلتها كان عنده أى مـرض ؟

	نعـم	لا
الطفل رقـم (١)	( )	( )
الطفل رقـــم (٢)	( )	( )
الطفل رقـم (٣)	( )	( )

× اذا كانت الاجابـه بنعـم اسالـها المرض كان شنو ، ميتين والسبب كان

ـــــنو ؟

(ركزى على الاسهال) وساعدى الام فى تعـريف المرض)

رقم الطفـــل	المرض	متين	الســـبب
(١)			
(٢)			
(٣)			

٩ـ اسالى الام بتاكل وبتشـرب طفلهـا شنو لازم يكون عان (اذا كان الطفل بيتبع اسالـها اذا كانت بتوقف الرضايـة الطبيعيـه اثناء المرض ام لا ؟

المرض حسب تسمية الام	الاعـــراض	عطت ليهو شـــنو	الاكل والشرب اثناء المرض	الرضاعـــــه بعد المرض

١٠ـ اذا كان الام ما ذكرت انه الطفل جاه اسهال خلال الاسبوعين الاخيرين اساليها اذا كان تعمل كده جاه اسـهال ؟

نعـم ( ) لا ( )

١١ـ اذا كانت الاجابه بنعم اساليها آخر مره كان عنده اسهال البراز كان كيف ؟

اساليها عن :

شكل الاسهال --

ريحتـه --

لونـه --

الاعراض المصاحبه ليه (فقدان شهيته) حمى ... لخ) :

+ اسالى الام هي بتعمل شنو لامن طفلها يكون عنده اسهال (اساليها عن كل يوم من بدايه الاسهال لحدت ما انتهى) ؟

+ اسالى الام بتدي طفلها باكل او بشرب شنو اثناء ما هو عنده اسهال وبعد ما انتهى وركزي في انك تساليها هل هي بتستمر في الرضاعه الطبيعيه اثناء ما الطفل مصاب بالاسهال واساليها عن كمية الوجبات وعدد المرات البياكل فيها الطفل ؟

طريقة التغذية	الرضاعة	الأكل	الشرب
اثناء الاسهال			
بعد الاسهال			

١٢ ـ اطالى الام هى بتفتكر الاسباب المختلفه للاسهالات عند الاطفال شتو واسبابها عن كل نوع من انواع الاسهالات واعراضه شتو (سخونه ـ طواش ـ دم ـ مغاط فى البراز ـ كحه) ـ واسبابها عن علاج كل نوع على حده ونوع التغذية عن الاصابه بكل نوع من الاسهالات المختلفه .

(ملحوظه اذا كان الام عندها تجربه بالانواع المختلفه للاسهالات

سبب الاسهال	العلاج	التغذية عند الاصابه (بالاسهال)	الملاحظات

١٣ ـ اذا كان الام ذكرت انه طفلها او طفلتها قبل كده جاله التهاب فى الجهاز التنفسى اسالتها اذا كان الى واحد من أطفالها الاخرين قد أصيب بالتهاب بالجهاز التنفسى وكانت بتتعامل معه كيف اثناء المرض ؟

العلاج	التغذية اثناء الاصابه بالالتهاب

٢ــ اسالى الام لامن تكون فى زياره خارج المنزل وتخلى طفلها مع زول تانى رايها شنو فى العنايه البيلقاها طفلها او طفلتهـــــا ؟.....

.....

.....

٣ــ اذا كانت الام بتخلى طفلها مع زول تانى اساليها منو البيعمل الوجبـــات بتاعـــــت الطفل ؟

.....

.....

* اذا كان الطفل لسع بيرضع اساليها هل بترجع اثناء العمل علشان ماترضعـــــع طفلها (اذا كانت الام تعمل خارج المنـــــزل ؟

.....

.....

** اذا كان الطفل بيستعمل البزازه اساليها البيجهزها منو اثناء ماهى تكون خارج المنزل ؟.....

....

٤ــ هل الام بتفتكر الشغل بتاعها او نشاطها داخل المنزل وخارجه شاق بالنسبه ليها وبياخذ وقت كتير بالمقارنه مع :ــ

*** جاراتهـــــــا .....

* المرأه فى المدينـــــه .....

* المرأه فى القريـــــه .....

* اى مقارنـــــه اخـــــرى .....

الدليـــــل رقم (٧)

نشاطات الام :-

ناقش مع الام اليوم العادى بتاعها بتقضيـــــه كيـــــف
(يعنى بتعمل فيه شنـــــو) اذا هى ماقدرت تجاوب اساليها اليوم ده
من الصباح عملت شنو وحتعمل شنو وارجعى معاها ثانى للايام الفاتت واعرفى
منها خلال اليوم كله من الصباح لحدت المساء بتعمل شـــــنو ؟

الزمـــن	نشاط الام	داخل المنزل	خارج المنزل	باجر(عمل منتج)	تاخد الطفل معها	تترك للطفل مع من

دليل رقم (٨)

تغذيـــة الطفل خلال ٢٤ ساعـــه

١) أسالى الام توصف لك طفلها أكل أمباح شـــنو ؟

ب) عشان تساعديها تذكر اساليها متين وكيـــف

ج) وعلى حسب اعمالك اليوميه ، برضو اتذكرى اساليها من الرضاعه من الشطر ؟

د) الاكل الفى الصحن اكله كله ولا ترك باقى فى الصحـن ؟

ر) كـل اكل اى حاجـــه بين الوجبات ؟

ع) اذا امكـــن توريك الاوانـــى الاكل فيها الطفل زى الكبايـــــه الصحـــن ، عشان تحـددى الكميه ؟

مذكرة ــ الكميه المقصودة هى التى اكلها الطفل فعليا ولست التى قدمت لـــــه .

الزمـــن	نشاط الام	اكل الطفـــل	مكونات الاكل	المقـــــدار

تابـــــع للدليل رقـم (٨)

- اسالى الام اذا كان ده الاكل العادى البياكله الطفل كل يوم

نعم (ن) لا ( )

اذا كانت الاجابه بلا اساليها عن السبب

.....

.....

* اسالى الام اذا كان الطفل او الطفله يقوم للرضاعه اثناء الليل .

نعم ( ) لا ( )

* اساليها اذا كان الطفل يقوم يأكل او يشرب اى حاجه اثناء الليل .

نعم ( ) لا ( )

اذا كانت الاجابه بنعم خليها تحـــــدد ؟

.....

.....

.....

دليل رقم (٩)

مصدر المعلومات

(١) عندكم راديو ولا تلفزيون

راديو نعم ( ) لا ( ) تلفزيون نعم ( ) لا ( )

(٢) كويس ولا خسران ؟

(٣) كان عندكم راديو أسألها تسمع الراديو اليوم كله ولا في أوقات مختلفه. ؟

(٤) أسألها احسن البرامج اللي بتخلي تستمع لها شو ؟

(٥) اذا كان عندها تلفزيون أسألها بتشاهد البرامج كله وللاقي برامج خاصه بتابعها ؟

(٦) أسألها احسن البرامج اللي بتخلي مشاهدتها شو ؟

	عدد مرات الاستماع	الفترة الصباحيه/المساء	البرامج المفضله
الراديو			
التلفزيون			

هل بتسمعى فى الراديو او تشوفى فى التلفزيون اى برامج بتخص التغذيــة
او الصحه العامــة ؟
اذا كانت الاجابه بنعـم اساليهـا البرامج ديـه عـن شنو ؟

٢/ فى اى واحد من افراد الاسـرة بيمشـى السـنيما او بيمشى بتفرج فى فيديو؟
نعـم ( ) لا ( )
اذا كانت الاجابـة بنعـم اسأليها
منـو ؟
وين ؟
وكم مره ؟

٣/ اساليها اذا كانت عندهـم اى جـرايد ولله مجلات فى البيت ؟
اذا كانت الاجابه بنعم اساليها .
عن شنو :؟
والبيقراها منـو ؟

٤/ فى اى زول بيمشـى يحضـر الاجتماع الهحصل فى الحلة ؟
اذا كانت الاجابة نعم اساليها
× الاجتماعات عـن شنو ؟ ___________
× ومنو البيمشـــى ___

٥/ حصل فى زول اداك اى ارشادات من تغذية الطفل ؟
نعـم ( ) لا ( )
اذا كانت الاجابـه بنعم اساليها الزول ده منو (الدايـه ، الزائرة الصحيه ، دكتور المركز او المستشفى ، طبيب خاص ، اجزجي ، والدتك ، صـديقتك ، اختك ، زوجـك . الخ والنصيحـة كانـت شنو ؟ ورايـك فيها شنو ؟ .

منـــو	النصيحـة كانت شنو	رايك فيها شنو

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الاب :

دليل رقم (١٠)

(١) رايك شنو فى طريقـــة معاملتك لطفلك الصغير ؟

(٢) هل هدك اشياء معينه انت دايم تقدمهـا لطفلك ؟

(٣) انت بتفتكـــر انك بتقدر تقدم الاشياء دى لطفلك .

(٤) انت بتفتكـــر دورك شنو فى رعايـة طفلك

(٥) فى لحظات انت بتشعر فيها انك دايم تدى ام د ك
اى نصـائح عـن رعايـة طفلك ؟

(٦) اذا كانت الاجابـة بنعم الطالبـة بتين ؟ النصائح
الدايم تقولها شنو ؟

(٧) حصل شاركت فى اى نشاط يخص بتغذيـة الطفل قبل
الغذائات او اطعام الطفل ؟ المشاركة ديه كانت شـــ نو ؟
(وكمى اكثر حاجـه من الشياء)

(٨) حصـل فى اى مرة عرض فيها طفلك وديتـــه الدكتور ؟

١٤ — أسألي الام اذا كانت بتغير تغذية طفلها في فترة اصابته بالتهاب الجهاز التنفسي ؟

نعم ( ) لا (✓)

اذا كانت الاجابه بنعم اسأليها

كيف ——————————————————————

——————————————————————

وليه ——————————————————————

——————————————————————

١٥ — اسألى الام عن الاحتياطات المتخذها الام فى تغذية طفلها اثناء المرض وبعد المرض ؟ (ملحوظة ركزى فى انك تتأكدى اذا كان فى أى نوع من الاكل او الشرب يحرم منه الطفل اثناء الاصابه بالمرض)

اثناء المرض	بعد المرض

١٦ — اسألى الام عن التغيرات المتلاحظها فى طفلها عندما يكون مصاب بالمرض ؟

——————————————————————

——————————————————————

——————————————————————

١٧ — بتعرف كيف ان الطفل صحته رجعت. ليه (عندما يعود للعب ياكل بشهيه ..) انتهاء العلاج .... الخ)

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Appendix B
Coding Format

Guide 1

area = area 1= Khartoum 2=Gezira 3=Kordufan

vill = village 1= El Eid Babikr 2= El Gar

1= El Nazer 2= El Doma

1= El Karbab 2= El Farsha

int = interviewer's number

hh = household number which give an idea about the criteria by which the families are chosen

1= family lost the father (either by death or divorce)

2= more than one child3= children of both sex

4=family lost mother 5= has twins

6= has one child 7= nuclear family

8= extended family 9= has a malnourished child

10= experienced child death 11= polygamous family

12= poor family 13= rich family

14= three generations 15= children from the same sex

id = individual number

hhsize = household size (persons sharing the meals)

hhcat = the household size could be catergorized as follows

1=< 4 2=5-7 3=8-9 4=≥ 10

Fage = father's age

fage1 = father's age collapsed into

1= 22-30 2=31- 39 3=40-50 4=≥ 50

Fed = father's education

0=no education 1=primary school 2=preparatory school

3= secondary 4=koranic school 5= adult education

fed1 = father's education collapsed as

0= no education 1= primary and preparatory

2= secondary 3= koranic and adult education

Focc = father's occupation

1= farmer 2=teacher 3=soldier 4=working in Arab countries

5= business 6=worker 7=driver

8=shepherd 9=vendor 10= nurse

11=security guard 12=no work

focc1 = after collapse

1= farmer 2= self employed (5)

3= outside employed (2,3,4,6,7,9,10,11)

4= sheperd (8) 5= not working (12)

Mage = mother's age

mage1 = after collapse

1= 15- 19 2= 20 -29 3= $\geq$30

Med = mother's education (like father education)

nochd = number of children

noch1 = number of children collapsed into

1= 1 2= 2-4 3= $\geq$5

notod = number of toddlers less than 36 month

notod1 = number of todlers collapsed as

1= 1 2=$\geq$2

agemo1 = age of first toddler in months

sex1 = sex of first toddler 1=male 2= female

agemo2 = age of second toddler in months

sex2 = sex of second toddler 1= male 2= female

agemo3 = age of third toddler in months

sex3 = sex of third toddler 1= male 2= female

nearfam= is there any relatives living nearby?

0= nobody 1= aunts 2= grandmother

3= brother/sister 4= second wife

caretak= who is taking care of the child?

1= mother 2= grandmother 3=sister

4= aunts 5= father 6= cousins

7=second wife

carehelp= who else help in taking care of the child?

0= nobody 1=cousins 2=grandmother

3= sister/brother 4= aunts 5=father

6= mother 7= second wife

nutst1= interviewer's perception of the first toddler nutritional status

nutst2=interviewer's perception of the second toddler nutritional status

nutst3= interviewer's perception of the third toddler nutritional status

1=well-nourished

2=moderate malnourished

3=severely malnourished

GUIDE 2

area, vill, hh, id, int (see before)

land = do you own land?

1=yes 2=no 3=rent it

What kind of crops do you plant? and is it available at the home now or not?

(list of crops: millet, sesame, sorghum, beans, okra, karkada, vegetables, sugar cane, melon)

11=yes they plant it and is available

10=yes they plant it but it is not available

00=they don't plant it and is not available

animal = do you own animals?

1=yes 2=no

What domestic animals do you have? and do you have any of its products?

(list of animal products: cow's milk, goat's milk, egg, yoghurt/rob, chicken, birds)

11=yes they have it and is available

10=yes they have is but it is not available

00=they don't have it and is not available

sell = Have you sold any products today?

1=yes 2=no

aid = Do you receive any aid?

1=yes 2=no

GUIDE 3

area, vill, hh, id, int (see before)

house = structure of the house

1=all concrete 2=partially concrete 3=no concrete

house1 = house after collapsing the code into

1= all concrete 2=partially or no concrete

door = how does the gate of the house look like?

1=iron 2=wood 3=no gate

toilet = latrine with courtyard

1=yes 2=no 3=bathing room

rooms = the number of the rooms

room1 = number of rooms after collapsing into

1= one room 2= two rooms 3=$\geq$ 3

kitchen = do they have a kitchen within the house?

1=yes 2=no

areation = is there good ventilation?

1=yes 2=no

anm = do you have animals?

1=yes 2=no

ancomp = do you have animal compound?

1=yes 2=no

animal list with coding

0=no if yes, then how many?

clsuit = are the mother's clothes appropriate to the weather?

1=yes 2=no

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clcl = are the mother's clothes clean?

1=yes 2=no

gold = does the mother wear gold?

1=yes 2=no

chcl = is the youngest child wearing stitched or ready made cloth?

1=yes 2=no

shoe = does the youngest child wear shoes? 1=yes 2=no

clhh = does the house look clean? 1=yes 2=no

clhand =is the mother's hand clean the moment of observation?

1=yes 2=no

wsupply = where do they get the drinking water?

0=missing 1=tower container 2=piped water

3=transported from river 4=hafir (collected rain water)

5=haud or spring

wstore = where do you store drinking water?

0=missing 1=metallic container (barmil) 2=clay container (zeer)

3=bucket 4=cooking pot 5=plastic containers

6=barmil and zeer

clwater = hygienic condition of the drinking water?

0=missing 1=clean 2=not clean 3=don't know

manure = what do you do with the animal feces?

0=missing 1=keep it to use it as manure

2=throw it out of the village

3=sell it 4=used for house repair 5=burn it 6=don't have

plware = do you have plastic ware? 1=yes 2=no

metalw = do you have cooking pots? 1=yes 2=no

glass = glass 1=yes 2=no

chpot = do you have special pot to cook for the child?

0= missing 1=yes 2=no

fire = what kind of fuel do you use?

0= missing 1=charcoal 2=wood 3=both

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Guide 4

area, vill, hh, id, int (see before)

feed1 = what's the food offered to the child during the first 24 hours after birth?

0= missing data for mother's death

1= boiled water 2= breastmilk + boiled water

3= boiled water + sugar + salt

4= rub the child gum with a dough made from flour and water

5= rub the gum with dough followed by boiled water + sugar

6= butter alternated with water with sugar and salts

7= breastmilk

prep = who prepared it for the child?

0= missing data because either the mother is dead or the infant was breastfed

1= grandmother 2= midwife 3= aunts 4= nurse

5= neighbor 6= sister

advice1= who gave you this advice?

1= grandmother 2= midwife 3= aunts 4= nurse

5= neighbor 6= sister 7= the older relatives

8= an old tradition 9= previous experience

reason= why did you give it?

0= don't know

1= there is no milk in the breast

2= not to feel thirsty

3= mother was tired

4= breastfeeding help milk production

5= to clean the child intestine

CS

6= because the child was hungry

7= because I had cessarian section

8= in order not to dehydrate

9= because the child was sick

10= in order to cool the mouth

11= to strengthen the child's mouth to suckle

12= to raise the child

13= to clean the intestine + feed the child

Feed2 = what did you feed the child during the first week?

1= breastmilk

2= breastmilk & boiled water + sugar+ salt

3= dough & water + sugar + salt

4= butter & water + sugar and salt

5= breastmilk & water& goat's milk

6= butter & water & breastmilk

7= dough & water & breastmilk

advice2 = who gave you this advice?

1= grandmother 2= midwife 3= aunts

4= nurse 5= neighbor 6= sister

7= the relatives 8= an old tradition 9=previous experience

reason2 = why did you give the child this food?

1= the child is young and his stomach does not tolerate other kind of food

2= in order not to feel thirsty

3= if the child does not eat he will die

4= this food is nutritious and is good for thirst and hunger

5= wash the stomach

6= because I did not have breastmilk and it hurts

7= the child was sick

8= to increase milk production

9= to strengthen his mouth

bywhat = How did you feed him with this food?

1= by spoon 2= by bottle 3= bottle + spoon

4= by cup

fbf = when did you start breastfeeding?

by the number of days

why1 = why did you start breastfeeding at that time?

1= it is the only nutution he can get

2= there is no milk

3= he is hungry and thirsty

4= to increase milk production

5= that what i heared from mine family

6= to get used to breastfeeding

7= to help his mouth to open

8= to bind him to his mother

fmilk = when does the breastmilk flow start (number in days)

stmilk = did you give him the colostrum? 1= yes 2=no

why2 = why did you give the colostrum?

1= nutritious 2= to stop crying 3= immunity & prevention

4= that is what the midwife said 5= to increase milk production

6= get used 7= like my mother

8= to help defecation 9= to cool his mouth

discard =If you did not give colostrum, did you discard the first mill:?

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1= yes 2= no

quantity = the amount discarded measured by ounce

why3 = why did you discard this milk?

1= because the child does not breastfeed

2= because there is pain in the breast

3= I have big amount of milk

pvd = did you visit the doctor or midwife? 1= yes 2= no

drtalk = did they talk to you about nutrition? (if not clear repeat the question:

" did they talk to you about food during pregnancy/lactation "?

1= yes 2=no

drsay = what did they say?

1= to breastfeed 2= to wash the breast

3= to breastfeed because breastmilk is useful

fatalk = did any member of your family talk to you about breastfeeding?

1= yes 2=no

fasay = what did they say?

1= should breastfeed 2= give immunity

3= to get used to it 4= to wash the breast

5= to cool the mouth 6= to hold his head during feeding

7= not to breastfeed during sunset

8= to eat special food to increase breastmilk

list of food

1 anisa

2 artificial milk

3 assida

4 beans (foul)

5 bread

6 biscuits

7 biscuits and milk

8 butter

9 butter and flour and salt and sugar

10 custard

11 cerelac (supplementary food)

12 cooked rice

13 cow's milk

14 dough (shreaded wheat)

15 egg

16 gongulase

17 goat's milk

18 jam (halawa)

19 juices (lemon, orange, grapefruit, karkada)

20 kisra

21 lentils

22 liver

23 mulah weika

24 mulah taklia with beef

25 mulah black eye beans

26 milk & fenugreek

27 milk & rice & date & fenugreek

28 mulah green beans

29 meat

92

30 milk + rice

31 meatsoup

32 nasha

33 normal adult food

34 potato

35 rob and bread

36 taraka (kisra +water + sugar)

37 water + sugar + salt

38 water & date & fenugreek

39 yoghurt

1= what did she feed her child during the first 40 days?

2= what other liquids do you give to the child?

3= what other food did you offer to your child?

4= what is the best food to start with?

5=what do you feed your child after the first year of life?

Reason = why did you give this food for the child?

1= nutritious

2= to stop crying

3= substitute fluid loss

4= not to feel hungry or thirsty

5= not enough milk production

6= get used

7= to clean the stomach

8= to cure stomachache

9= to make the child powerful

10= to increase breastmilk

11= to improve teething

12= better than breastfeeding

13= to decrease illness

14= to grow faster

15= because of decreased milk production

16= because he is weak

17= because she old enough to eat

18= from my past experience

19= poverty and unavailability of food

20= the child is looking at the food and wants to get it

21= 4 + 8

22= 6 + 14

23= 12 + 14

24= 2 + 4

25= 9 + 14

26= 5 + 14

27= 1 + 4

28= 13 + 4

29= 14 + 4

30= 14 + 1

31= 1 + 9 + 13 + 14

32= 1 + 9 + 14

33= 1 + 9

34= 1 + 8

35= 9 + 19

36= 14 + 19

37= 1 + 2 + 4

38= 1 + 6

39= 1 + 5

40= 1 +13

41= 2 + 4

42= 4 + 9

43= 4 + 13

44= 7 + 8

45= 9 + 13

46= 1 + 13 + 14

47= 1 + 3

61= the child refused breastmilk

63= to help him defecate

64= it is light

65= the milk is not available

66= to decrease the breastfeeding

reason1 =collapse the codes into

1= nutrition 1,4,5,9,10,12,14,15,16,23,25,26,27,29,30,31,32,33,37,39,42,46

2= health 3,7,8,13,21,28,34,40,43,44,45,47,63

3= others 2,6,11,17,18,19,20,22,24,35,36,38,41,61,64,65,66

how = how did you give it to the child?

1= by cup 2= bottle 3= spoon

advi40 = who gave you this advice?

1= grandmother 2= midwife 3= sister

4= aunts 5= previous experience 6= doctor

7= nobody

npf = what is the mother's opinion about not breastfeeding?

1= the child will suffer from diarrhea

2= the child will be sick and will not grow

3= not good for the child

4= the child will not grow

5= miss the mother's

6= delay teething

7= feel neglected

8= breastmilk is essential

9= no difference if feeding artificial or bottle feeding

pf# = how many times per day do you breastfeed your child?

1= when crying 2= six times 3= can't define

twopf = do you breastfeed from both breast at each time?

1= yes 2=no

goodm = Does the mother consider her milk good or bad?

1= good 2= bad

impmilk = how can you improve your milk?

1=to drink fenugreek and nasha

2= to eat meat

3= increase drinking of juices and fluids

4= to drink milk

5= drink milk and eat well

7= don't know

sexdif = is there any diference in breastfeeding between boys and girls?

1= breastfeeding of girls is painful

2= girls breastfeed longer and more than boys

3= girls breastfeeding is cold while boys is hot

4= boys breastfeed more than girls

5= there is no difference

6= girls breastfeeding is hot, painful and frequent

agew = At what age did you start introducing the food?

time = How did you know that this is the proper time for supplementation?

1= because he is older

2= because he tries to catch the food

3= because the breastmilk decreases and is not enough

4= because he is weak

5= start smiling and knowing people

6= knew from newspaper/radio

7= knew from neighbors/sister/grandmother

8= knew from health center/school

9= start sitting/ walking

ftyp = how did you know that this is the proper food for supplementation?

1= its digestable

2= light

3= cool

4= nutritious

5= good (it is the available food)

Wsfb = What the cause of weaning?

1= pregnancy 2= for fasting ramadan

3= from diarrhea 4= because he was sick

5=pregnancy and ramadan

age1 = at what age did you wean your child?

say = who said that this is the proper age?

1= people 2= grandmother 3= doctor

4= midwife 5= mother

opf = what is your opinion about your child feeding?

1= eating well 2= not good enough

3= very good 4= average

prof = do you have any problem in feeding your child?

1= yes 2=no

solve1 = If yes, how do you solve this problem?

1= visit the doctor 2= no solution, because of low income

3= change food 4= it will be solved by time

5= careful observation of the child

6= to feed him good food

7= to offer to him the food he likes

imphel = do you think you can improve your child's health?

1= yes no=2

how1 =how do you improve the child's health?

1= change food from time to time

2= to give drug (appetizer)

3= to force him to eat

4= breastfeeding by schedule

5= to take care of the child (cleanliness and food)

6= to share meals with the family

7= to visit the doctor

8= fumigation

9= to improve the food by giving egg, milk, meat

GUIDE 5

area, vill, hh, id, int (see before)

Fprep = during your visit did the mother prepare food?

1=yes 2=no

list of foods

(eggs, kisra, salad, potato, okra, bread, pasta, pumpkin, meat (or chicken)

assida, foul, rice, eggplant, beans, corn, green vegetables like Moulokia, Khodra, Abadab)

if she prepared it, the

coded=1 not=2

handwash = did the mother wash her hands before/during cooking?

1=yes 2=no

clware = what was the hygienic condition of the plates, cooking pots and utensils?

1=yes 2=no

wsupply = what kind of water was used?

1=zeer 2=barmil 3=plastic tank

meal = did you observe the mother feeding the child?

1=yes 2=no

list of foods observed eaten

(eggs, kisra, salad, potato, okra, bread, pasta, pumpkin, meat, assida, foul, rice, eggplant, beans, corn)

if the child eats it

coded=1 not=2

hwash = did the youngest child wash their hands?

1=yes 2=no

Him = does the child eat by himself or does the mother feed him?

1=yes 2=no

With = mode of feeding

1=spoon 2=hand 3=bottle 4=other

Handle = mother's child interaction

1=patient 2=unpatient 3=feeding himself

quant = was the child's portion served separately?

1=yes 2=no

Time = duration of observation

Breast = does the mother breastfeed the child both breast/meals?

1=yes 2=no 3=weaned

clbreast = hygienic condition of nipple?

1=yes 2=no

cover = is the nipple covered after meals?

1=yes 2=no

Atif =is the child bottle fed?

1=yes 2=no

number = number of time the mother breastfeed?

Clbottle = hygienic conditions of the bottle

1=yes 2=no

covbottle = does the mother cover the bottle after use?

1=yes 2=no

GUIDE 6

area, vill, hh, id, int (see before)

chdhlth = How does the mother see the physical condition of the child in the last two weeks?

1=good 2=sick 3=continuously sick 4=weak

5=feel bad 6=fair

cause = what is his complaint?

1=diarrhea 2=diarrhea & vomiting

3=chest infection and flu (upper respiratory tract infection)

4=teething 5=fever 6=distension 7=malaria

8=fever and oral infection

aet = aetiology of illness

1=bath 2=malaria 3=from cold or air (sagta, laga)

4=teething 5=diarrhea 6=diarrhea due to teething

7=change of food 8=kabrana

9=weaning 10=mother's negligence

moworry = does the mother seem worried about her child's condition?

1=yes 2=no

intop = what do you see the child's condition to be, in comparison to what the mother has said?

1= better than she said 2=as she is saying

3=child is sick/weak but the mother does not worry

interfe = what did the mother do?

1=visit the doctor 2=home treatment

3=visit the bassir 4=stop cow's milk

5=visit the doctor and use traditional medicine

6=cautery

7=use medication

adv= who is the first person to seek his advice in child's illness?

1=grandmother 2=father 3=neighbor

4=herself 5=aunts 6=doctor

trad = do you use traditional medicine?

1=yes 2=no

3=fumigation 4=custard

5=bleeding 6=rice water

7=tea 8=garad

9=sesame oil 10=custard & fumigation

11=water

12=shamar 13=ginger & clove 14=cautery

mevist = who takes the child to the doctor?

1=the mother 2=father 3=both 4=uncles 5=grandfather

medic = who buys the medication?

1=father 2=mother 3=grandfather 4=uncles

loan = if you don't have money from whom would borrow mony to by the medication?

1= never happened 2= grandfather 3=uncle

4= neigbhor 5= realtives

6= she would not the medication

7= from the merchandise of the village

grow1 = maternal perception of first toddler's growth

1=normal 2=less than normal

grow2 = maternal perception of second toddler's growth

grow3 = maternal perception of third toddler's growth

reas1 = why is he normal?

1=looks good (grows well) 2=does not suffer illness

3=he is eating well and playing

4=his weight is more than his brother

5= playing with children

reas2 = why is youngest child abnormal?

1=growing slowly 2=usually sick 3=does not eat

4=abnormal weight (low)

5=not like his brother 6=not eating well

grocomp1 =how dose he look in comparison to the other children?

1=weaker 2=smaller 3=good 4=average

5=like them 6=bigger than his siblings

grocomp2 = for the second toddler

grocomp3 = for the third toddler (the same code)

grchart1 = does the first toddler has a growth chart?

grchart2 = does the second toddler has a growth chart?

grchart3 = does the third toddler has a growth chart?

1=yes 2=no

sickw1 = was the first toddler sick during the last two weeks?

sickw2 = was the second toddler sick during the last two weeks?

1=yes 2=no

memic1 = what was the illness (for the first toddler?)

memic2 = what was the illness (for the second toddler?)

1=diarrhea 2=lega 3=vomiting (torash)

4=fever 5=kabarana 6=teething

7=Abu sareer 8=hayfaat 9=cough

10=malaria 11=eltihab/nazla 12=diarrhea and fever

13=jaundice (yarakan)

caus1 = what was the cause of illness for the first toddler?

1=lega 2=kabarana 3=nazla

4=fever 5=teething 6=milk fever

7=light milk 8=change milk

9=cold after a bath/ cold weather

10=change in weather 11=tatweer 12=food

13=eating fat 14=sagta 15=weaning

16=drinking cold water 17=malaria 18=hayfaat

caus2 = what was the cause of illness for the second toddler?

what were the symptoms? 1=yes 2=no (for all the symptoms)

dia = diarrhea

water = watery

blood = with blood

color = color of feces

1=whitish 2=yellow 3=greenish 4=red

odor = odor of the stool

1=offensive (la'aout, asha) 2=normal

consist

1=ratrat 2=zaharig 3=watery 4=mushy

fev = fever

colic = colicky pain

coug = cough

vom = vomiting

anorexia = anorexia

how did you treat it? 1=yes 2=no (for all treatments)

cautery = treating by cautery

fum = fumigation

circum = circumcision

bleed = bleeding the child

drug = medication

custard = custard in water

dilka

mahlab

nasha

rice

lemon

ORS

garad

gongolas

karkada

redtea

blacktea

mahareb

dough

fenug = fenugreek

kisra

egg

milk

potato

mulrob = mulah rob

eggbean = fava bean or egyptian bean

biscuit

breastf1 = does the mother breastfeed during illness

breastf2 = does the mother breastfeed after illness

0= those who are exclusively breastfed

1= as it was before illness

2=decreased 3=stopped

4=continuous with increase fluid

5=increase breastfeeding 6=weaned

food1 = what the kind of feeding during illness

1=stop food 2=as before 3=decrease

4=stop fat 5=stop cooked vegetable

6= give special food (custard, rice milk, ...)

food2 = what the kind of feeding after illness (the same)

chest = did he suffer from chest disease?

1=yes 2=no

chtreat = how did she treat the child when he had chest infection?

1=traditional medicine 2=visit the doctor/ health assistance

3=visit doctor and traditional medicine

chfood = how was the child fed?

1=normal food 2=milk and biscuit + rice

3=lemon juice 4=decrease food intake

5=breastfeeding 6=boiled vegetables without fat

7=ginger 8=egg

When does a mother know that the child is sick? 1=yes 2=no (for all signs)

play1 = stop playing

weak1 = feel weak

anor1 = anorexic

01

fusy1 = irritable

sleepy1 = sleeping more than usual

cry1 = continuous crying

When does the mother know that the child is cured? 1=yes 2=no (for all signs)

play2 = when he starts playing

weak2 = getting better and looks good

anor2 = starts eating like before

fusy2 = not irritable

sleepy2 = getting fresh

cry2 = stop crying

symp = withdrawal of symptoms

1=when symptoms withdraw

0= mother did not mention the symptom

GUIDE 7

area, vill, hh, id, int (see before)

(All activities are coded as followed)

0=no (mother did not mention it)

and if yes, then the frequency of doing this activity is recorded

tea = how many time does the mother prepare tea?

prepmeal = how many meals does the mother prepare?

eatm = how many meals do they eat/day?

washdish = does the mother wash the dishes?

clhh = does the mother clean the house?

coffee = prepare coffee

visit = visiting neighbors

washcl = washing clothes

iron = ironing the cloth

washch = children shower

shower = having a bath

bed = prepare bed for sleeping

wood = bring wood for fire

water = bring water

agri = workind in field

baking = baking kisra

watering = watering the animals

anmeal = feed the animals

milking = milking goats or cows

sewing = sewing dresses

chcare = while she outside the house does she take the child with her?

1=leave him with his grandmother 2=with his sister

3=with his brother 4=with his aunts

5=with neighbors 6=take the child

7=father

caregive = what is the mother's opinion about the care her child receives?

1=good 2=fair 3=bad 4=always take the child with her

pmeal = who feeds the child during her stay outside the house?

1=grandmother 2=sister 3=brother 4=aunts

5=neighbors 6=the mother before leaving 7= father

breastf = if the mother is breastfeeding, does she come back to breastfeed her child?

1=yes 2=no 3=not working

artif = if the child is bottlefed, who prepares it for him during her absence?

the same like feed by 7= don't use bottle

citywom = what is the mother's perception of how hard she is working in comparison to city women?

1=villagers work more 2=villagers work less

3=the same 4= don't know about women in cities

villwo = in comparison to neighbors? (the same)

All activites will be recoded as

1= indoor activity 2= outdoor activity

Guide 8

area, vill, hh, id, int like before

a list of food that was mentioned by the mother when asking her about the 24 h food intake. It is mainly qualitative or recording the frequencies of each food

0= this food was not mentioned by the mother

other numbers mean the frequency of the food or how many times did she offer this food to her child in the last 24 h.

Breast= is the child breastfed ?

0= missing 1=yes 6=weaned

the list of food mentioned is

artmilk = artificial milk

ass = assida

bread = bread made from wheat

biscuit = cookies

cust = custard (pudding)

cerelac = weaning food

cookdrice = cooked rice

cowm = cow's milk

dough = sharia, a kind of food made form wheat

egg

eggpl = cooked eggplant

egypb = egyptian bean or fava bean

goatm = goat's milk

guava

jam = Halawa is a sweet, high sugar food made from seasame and is not home-made, should be purchased

karkada = hibiscus plant (drink)

kisra = a thin sheet made from either sorghum or millet, in Khartoum they mixed it with wheat

lemonj = lemon juice

lentils

lokma = starchy food made from wheat

mulah = cooked vegetables

muweika = Mulah weika (I used it for both cooked either dried or fresh okra)

murob = Mulah rob (it has milk, onion and oil and dried okra)

musharmot = Mulah sharmoot (dried meat and dried okra)

mutakbeef = Mulah taklia (meat and onion and tomato sauce)

mulblbean = Mulah black eye bean (grinded black eye bean cooked with meat soup or water and is in form of soup)

mrdfen = milk + date + fenugreek + rice

mulbean = cooked green beans

meat = in all cases, I entered it with mulah except in one case where the child was eating cooked meat record = 32

melon = water melon

milkrice = milk + rice

meatsoup = soup meat

molukia = is a green vegetable cooked in soup like form (I used it for all greeny vegetables cooked the same name like abadib, Khodra)

Nasha = starchy porridge

orangj = orange juice

pineap = powdered drinks (pineapple flavor)

potato = cooked

regeef = starchy staple food (kisa, lokma)

taraka = Taraka or safwa (kisra with sugar and water)

tea = red tea

teamilk = tea and milk

watsug = water + sugar + salt

yoghurt

daily = does the child eat this food everyday?

1= yes 2= no

night = does the child nurse during night?

1= yes 2= no

eatnigh = does the child wake up night and ask for food or drink?

1= yes 2= no

GUIDE 9

area, vill, hh, id, int (see before)

radio = does the family has a radio?

1=yes 2=no

good = is it working?

1=yes 2=no

listen = how frequent do they listen to the radio?

1=all day 2=different time 3=rare 4=never

period = when are they likely to listen to the radio?

1=morning 2=afternoon 3=both 4=evening5=different time

favprog = what is their favorite type of program?

1=news 2=family program 'barnamig el usra'

3=educational program 'baramig thakafia' 4=entertainment (song)

5=news & advertisement & series 6=news & series

7=agricultural program (baramig zera'aya)

TV = do they have a TV set? 1=yes 2=no

TVfav = what is the TV favorite program?

1=all programs 2=none 3=educational program 4=series

Hethpro = does the mother listen/see health or nutritional programs

1=yes 2=no 3=rarely

whichpro = what was it about?

1=haiati 2=family prog 3=educational prog "agricultural" nutritional program

4=don't remember 5=haiati & family prog

theat =do any family member watch movies or video?

1=yes 2=no

who = who

1=father 2=mother 3=brother

4=all family 5=father & brother

thfreq = how frequently do they watch movies?

1 rarely 2=frequently

news = is there any newspaper or magazine in the house?

1=yes 2=no

newname = what is its name or title?

1=newspaper 2=magazine 3=children magazine

4=doesn't know 5=newspaper & magazine 6=other (religious)

reader = who are the readers?

1=mother 2=children 3=father

4=children and father 5=all 6=others

meet = does any family member attend meetings?

1=yes 2=no

meetpurp = what kind of meetings do they attend?

1=for the benefit of the village 2=women development meeting

nutred = did any person attend nutritional seminars?

1=yes 2=no

nutpresnt = who gave you the nutritional advice in this seminar?

1=midwife 2=health worker/nutrition officer/nurses

3=doctor 4=others (teacher)

5= mother

opinion = what is your opinion about it?

1=good 2=helpful nutritional advice

3=not helpful

GUIDE 10

area, vill, hh, id, int (see before)

fcare = how does he view his relationship to his children?

1=help the mother in raising the children

2=it is mother's responsibility but he is responsible financially

3=good I am buying him food

4=I love him and care about him

5=I treat him well and punish him when doing mistakes

6=I am doing my best

7=I give him special care

8=I hold him and play with him

9=being a good example to them and buy them food

fhope = is there anything he particularly wants for his child?

1-offer him drug and food 2=drug & food & education

3=drug & food & cloth 4=food

5=food & money

6= to get more time to spend with my child

7=offer him education & cleanliness 8=nothing in particular

9=food & clothing

10=take care of them and stay longer with them

11=to buy them all their needs

12=help the mother in raising them

13=education

14=clothing & buying them gold

collapsed into

1= provide materially 1,3,4,9,12,15

2= provide emotionally 6, 10, 11, 13

3= provide education 14, 2, 7

4= nothing 8

Foffer = does he feel he can provide these things for this child?

1=yes 2=no 3=not enough income 4=whenever he could

collapse into 1= 1 and 4 2= 2 and 3

Frole = what is his opinion in regards of taking care of his child?

1=buying all his needs 2=afford education

3=advice him and buy food and medication

4=buying food and medication

5=helping the mother

6=no role (mother's responsibility)

7=affording advice & cleanliness

8=raising the child and feeding him

9=health and cleanliness

collapsed into

1= provide 1,2,4 2= advice 5,7,8,9

3= provide + advice 3 4= no role 6

Madvice = when does he feel he should instruct the child's mother about how to care for the child?

and what would he say?

1=take care of the child and his food

2=nothing

3=food & cleanliness and not to let him outside by himself

4=cleanliness

5=punish the child when doing mistakes

6=visit the doctor when the child is sick

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7=give the mother nutritional advice

8=tell her to give medication in time

9=not to leave the child by himself

10=being kind to the child & take care of them & take care of their feeding and medication

collapse into 1= food advice 1,3,7 2= hygiene 4

3= discipline 5 4= health care 6, 8

5= child care 9 6= all kinds of care 10

7= none 2

Nuthelp = is the Father involved in any activity related to feeding his child?

1=yes

2=no

3=buy food

4=buy all house needs

5=prepare his child's food when the mother is out

6=buying biscuits & milk & tehinia

7=to give him the medication & not to leave him home with his other sister

8=to buy food and medication

9=give the mother money (it is mother's responsibility)

collapse into 1= yes 2= no 2,9 3= buying 3,4,6,8 4= caring 5,7

Docvist = did you go with your child to the doctor?

1=yes 2=no 3=never happened

SZ:guide

Appendix C
Focus Group Questions

مشروع تقييم اساليب تغذية الاطفال وسط الجماعات العرقية المختلفه

/١ كيف تعرفى الطفل السليم معافى من غير المعفى ؟

متين تقولى على طفل كويس وطفل غير كويس ؟

/٢ كيف تعرفى ان الطفل ده بينمو ؟

/٣ هل فيه علاقه بين نمو الطفل وحجمه ؟

/٤ هل هناك علاقه بين صحة الطفل والرعاية المقدمه له ؟

/٥ ماهى الإمراض المنتشره التى تصيب الاطفال ؟

/٦ متين تعرفى ان الطفل مريض ؟

/٧ هل مرض الطفل له علاقه باكله ؟

/٨ الطفل المريض المفروض ياكل ايه ؟

/٩ هل لما الطفل يشقى تغير الام طريقه معاملتها لطفلها ؟

/١٠ لما الطفل يمرض ماذا تفعل الام ؟

/١١ وفى حاله استمرار المرض ماذا تفعل ؟

/١٢ هل يوجد أمهات لا تلجأ الى المستشفى لعلاج طفلها لماذا ؟

/١٣ ماهو الاكل المناسب لفترات عمر الطفل ؟

/١٤ متين تعرفى ان الاكل دى يضر طفلك او ينفعه ؟

/١٥ ماهو الاكل الى يمرض الاطفال ؟ هل يوجد اكل كافى تعطيه لطفلك حتى لا يمرض ؟

/١٦ هل هناك اسباب تجعل الطفل ضعيف ولا يصلح بالتغذية ؟

/١٧ هل هناك اشياء عن تغذية الاطفال وصحتهم اختلفت عن الماضى ؟

/١٨ متى تبدأ الام فى ارضاع طفلها ؟

/١٩ ماذا يقدم للطفل فى الايام الاولى بعد الولادة

/٢٠ متى تشطف المراه لبن الشطوه) ولماذا ؟

/٢.....

/٢١ ماهو اللبن الخفيف واللبن التقيل ؟

/٢٢ كيف تعرف المراة ان لبنها خفيف او تقيل ؟

/٢٣ كم مدة الرضاعه الطبيعية للطفل ؟

/٢٤ ومتى تبدأ تلحيس الطفل ؟ وكيف تعرفين انه الوقت المناسب ؟

/٢٥ ماهو الغذاء المناسب ؟ وكيف تختارين ؟

/٢٦ في حالة عدم استجابه الطفل ماذا تفعلين ؟

/٢٧ من يرعى الطفل في غياب الام ؟

The focus group discussion questions

Q1 How do you differentiate between a healthy/ unhealthy child?

or when do you know that this child is healthy or not?

Q2 How do you know that this child is growing normally?

Q3 Is there any relation between the child's growth and its size?

Q4 Does the mother treat the child differently during illness?

Q5 What are the common children's illness that affect the children ?

Q6 When do you know that this child is sick?

Q7 Is there any relation between the child's illness and his food intake?

Q8 What do you think is the proper food to be introduced to the sick child?

Q9 Does the mother change her attitude or care during and after illness?

Q10 What does the mother do when the child is sick? If he continue to be sick what does she do?

Why?

Q11 Does it happens that mothers do not seek medical advice? Why?

Q12 What do you considered the proper food for your child?

Q13 When do you know that this food is good/ bad to the child?

Q14 What is the food that causes the child illness?

Is there any food you feel it may cause child's illness?

Q15 What are the causes of child's weakness that could not be treated by food?

Q16 Is there any difference in infant feeding pattern over the last few years?

Q17 When does the mother start breastfeeding?

Q18 What is the best food to be offered to the child during the first few days after delivery?

Q19 When does the mother discard the breastmilk and why?

Q20 What is light/heavy milk?

Q21 How does a mother know whether her milk is light/heavy?

Q22 How many times does a mother nurse her child?

Q23 When does a mother start introducing food?

Q24 How do you know that this the proper time? What is the proper food? How does she choose it?

Q25 What is weaning? How does a mother wean her child? When ? Why? Does weaning affect the child? Why? Is there any gender difference?

Q26 If the child refuses the food, what do you do to for him?

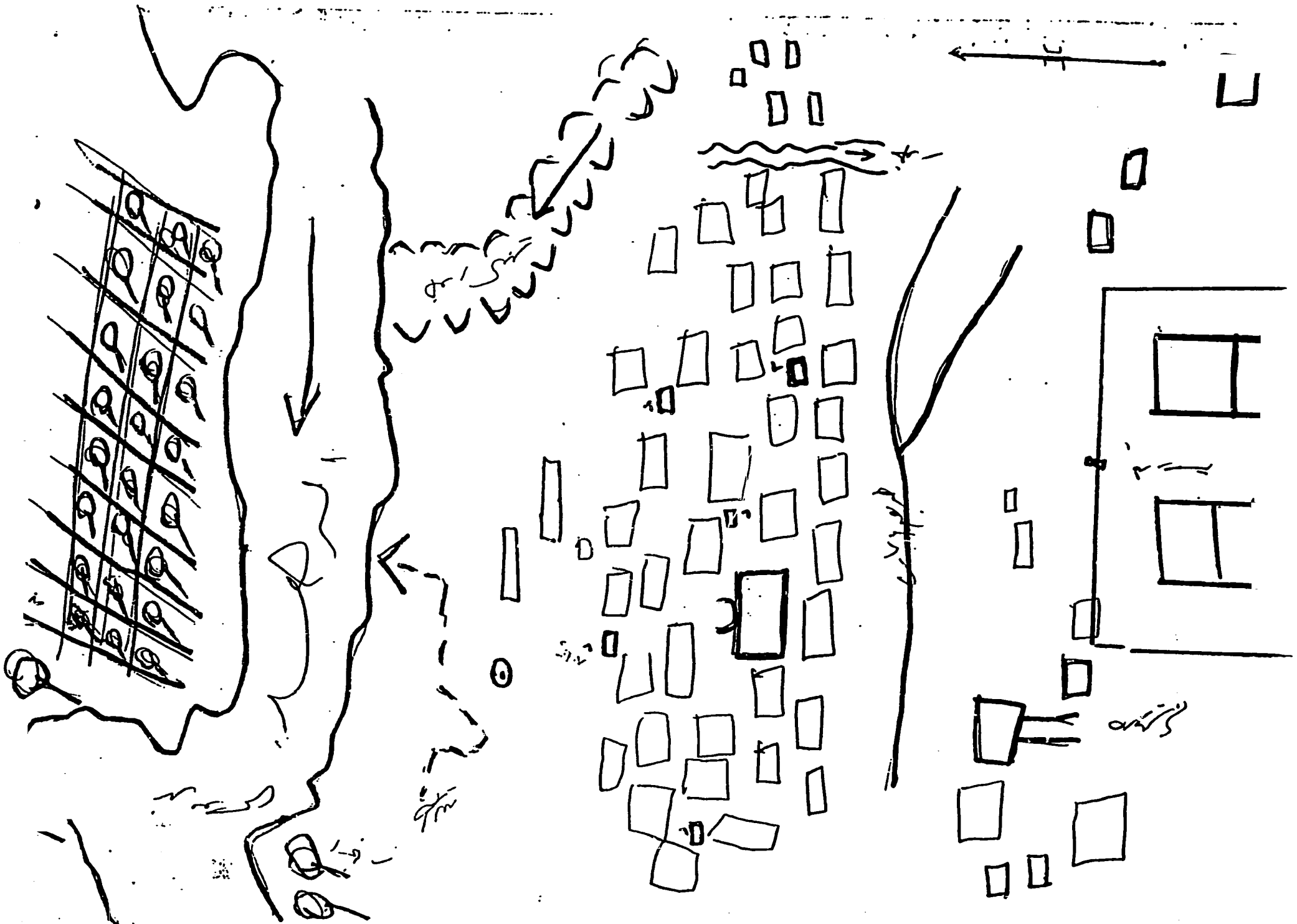
Q27 How do the women spent their day?

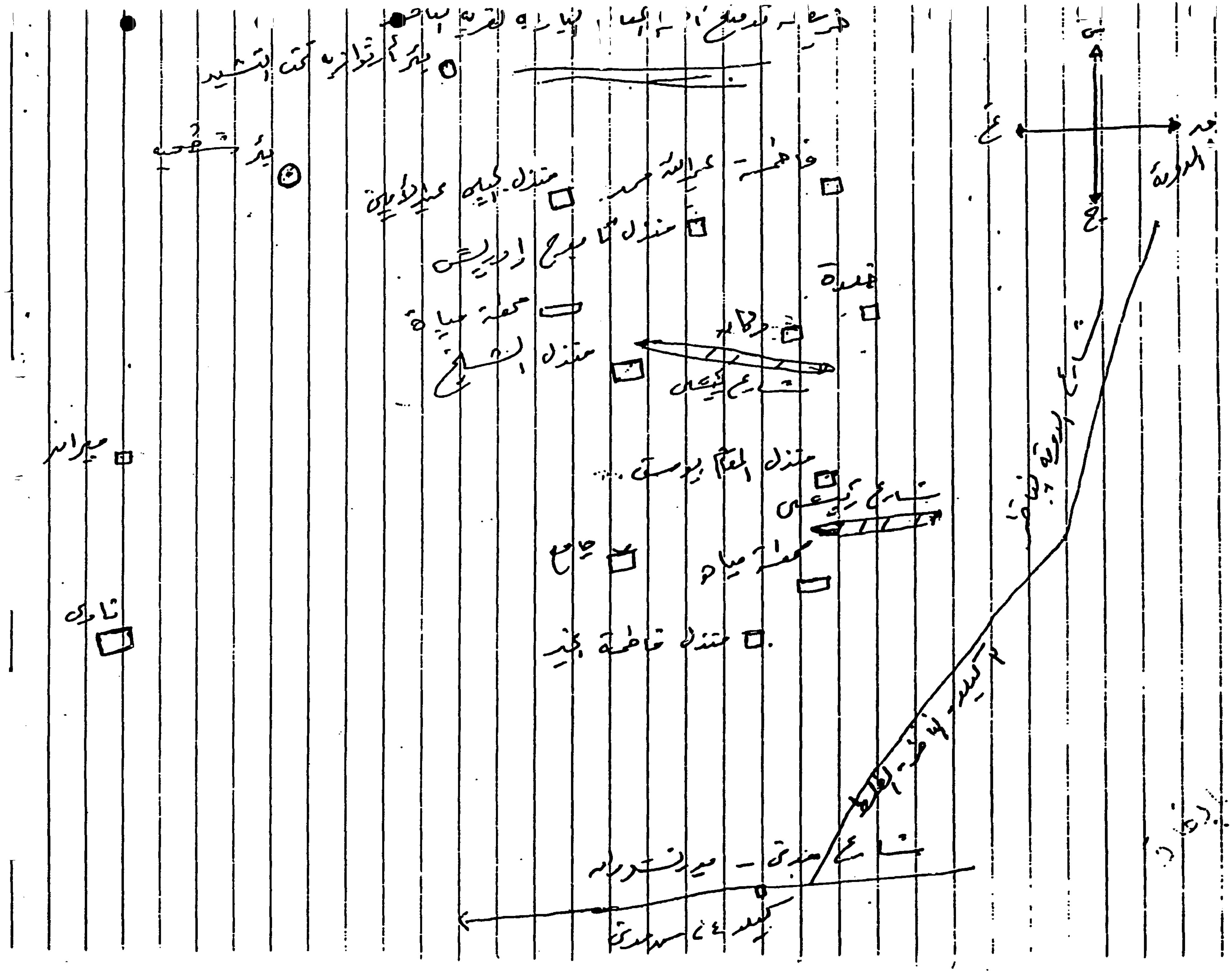
Q28 What is the common infectious diseases affecting children?

Q29 What is diarrhea? When does a mother worry about her child?

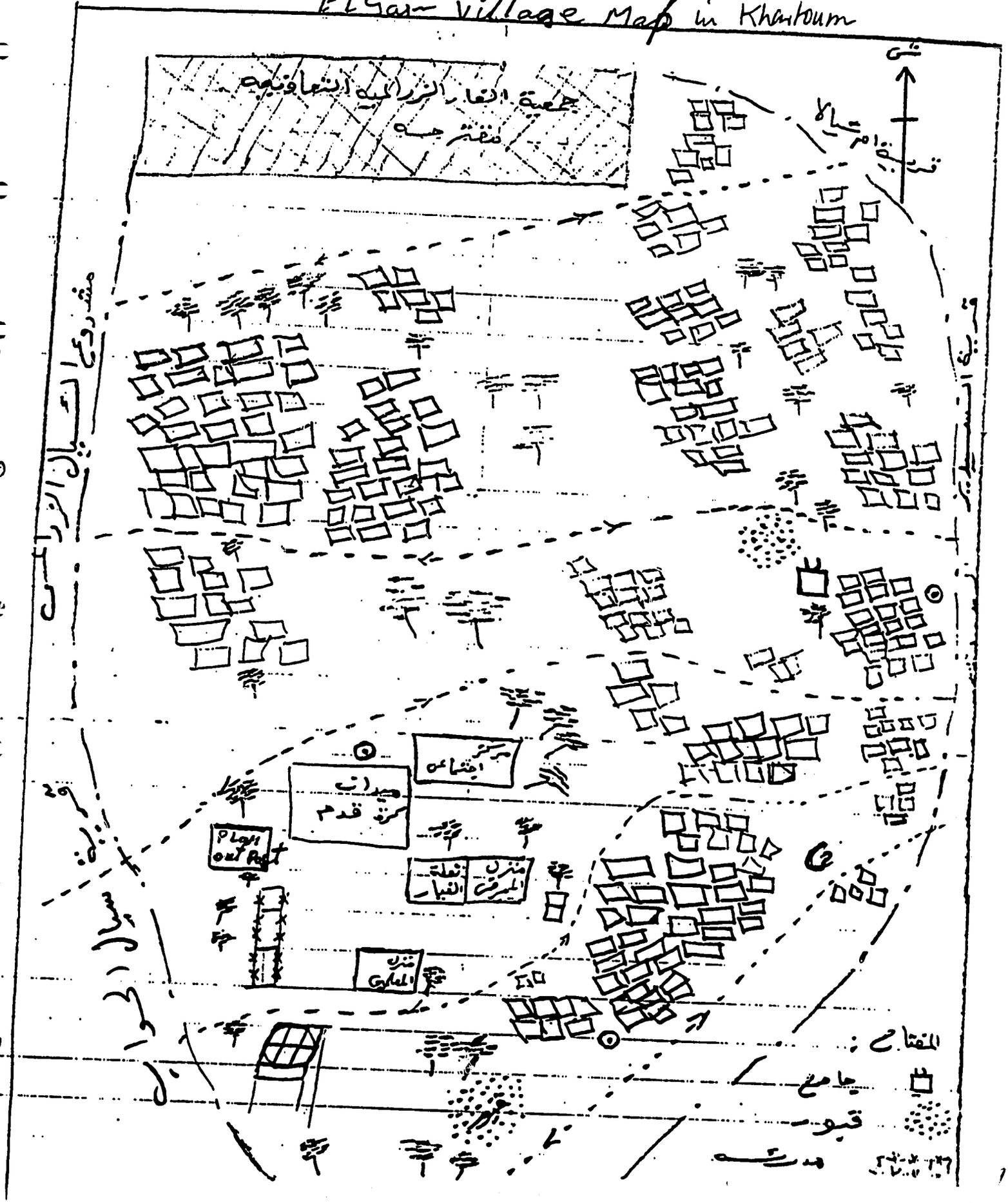
Appendix D
Village Maps

map of El Doma in Gezira

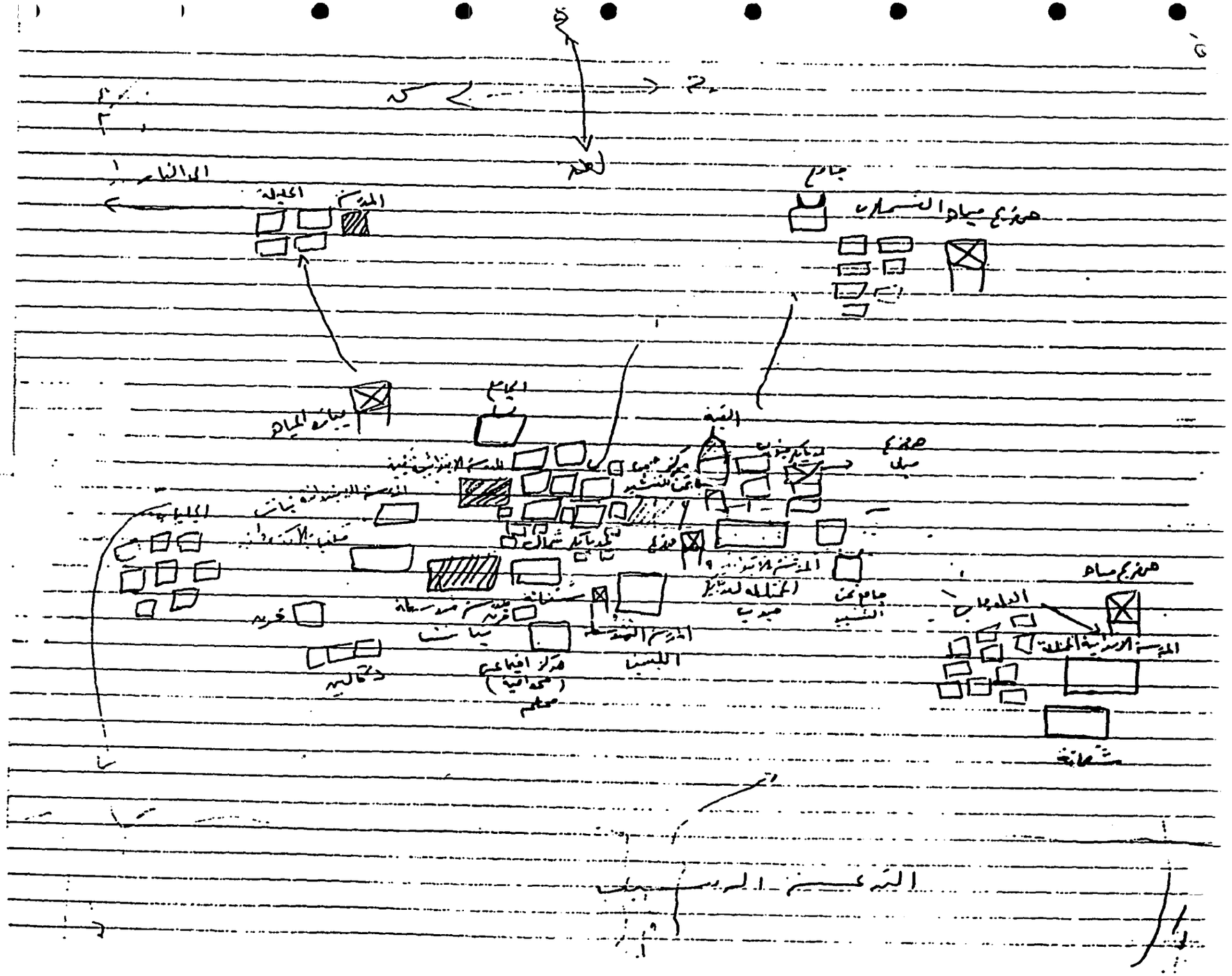



بئر رقم ٣ تحت التشييد
منزل الشيخ
محطة مياه
منزل المعلم يوسف
جامع
محطة مياه
الدورة

Elgar- village Map in Khartoum



A map for Eid Babiker in Khartoum



A of El Village in Fordufan